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# Admissions Criteria That Best Predict Which Applicants Will Successfully Enter the Nursing Profession

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Admissions Criteria That Best Predict Which Applicants Will Successfully Enter the

Nursing Profession

by

Marlene F. Kellner

Dissertation Submitted in Partial Fulfillment  
of the requirements for the degree of

Doctor of Education

Presented to the Faculty of the  
College of Education, Information, and Technology

December 19, 2018

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Long Island University  
LIU Post Campus

Dedicated to H.G. Bruns III

January 9, 1935 – August 24, 2017

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### Abstract

Currently, the same criteria are being used for admissions into nursing programs in one school of nursing in the Northeastern United States. To date there are no statistically significant data to correlate these criteria with successfully entering the nursing profession. Due to the nursing shortage, limited number of seats available in nursing programs, low nurse retention, and high nursing school attrition rates, it is necessary to use an admissions process designed to select the candidates who are most likely to succeed on the NCLEX-RN, and enter into the nursing profession. A latent class analysis was used, and revealed that the ideal candidate was found to be an individual who is either an optimistic, full-time student, who earned a high ACT score, and had a career prior to enrolling into the nursing program, or was an optimistic, part-time student, who earned a low ACT score, and had a career prior to enrolling into the nursing program. A survey provided further insight and the responses indicated applicants who self-reported that they: have good judgment, seek out challenges, are capable of anything, are professional, are optimist, need to utilize what is learned, are ethical in nature, are able to recover quickly for failure, are motivated by intrinsic factors, are self-directed, complete what they start, have a sense of team-awareness, admit to mistakes, are resilient, have a sense of spiritual well-being, and possess leadership qualities, ultimately entered into the nursing profession

*Keywords:* admissions criteria, associate degree nursing programs, latent class analysis

## CHAPTER 1

### BACKGROUND AND CONTEXT

#### **Purpose of the Study**

The purpose of this study was to gain a greater understanding as to which admissions criteria are the best predictors of applicants who will successfully enter into the nursing profession after graduation from Associate Degree Nursing (ADN) programs in the Northeastern United States. Since nursing school graduates face many obstacles which can prevent them from entering the nursing profession, such as passing the National Council Licensing Examination (NCLEX-RN), and being able to handle the demands of being a new nurse, this was an important study to undertake.

#### **Statement of the Problem**

Nationally, 15.7% of graduate nurses who take the NCLEX-RN fail (National Council of State Boards of Nursing [NCSBN], 2018). Once a student graduates from a nursing program, the student *must* pass this licensing examination, or is not deemed qualified to work as a Registered Nurse. Due to the nursing shortage (American Nurses Association [ANA], 2014), low retention rates in nursing (American Healthcare Association, 2013), high attrition rates in nursing schools in the Northeastern United States, and lack of available seats in nursing programs (American Association of Colleges of Nursing [AACN], 2017) the need to select applicants who are likely to succeed on the NCLEX-RN, and enter into the nursing profession, is more important now than had been in the past. Further, a nursing program may risk losing their accreditation due to low NCLEX-RN pass rates (Serembus, 2016).

Although prior research was located that identified grade point averages (GPAs) (Elkins, 2015; Ortega, Burns, Hussey, Schmidt, & Austin, 2013; Romeo, 2013; Schripsema, Trigt, Borleffs, & Cohen-Schotanus, 2014), Standardized Assessment Scores Health Education System Inc. (HESI) (Elkins, 2015), HESI Admission Assessment (Chen & Voyles, 2013), as well as transfer credits (Simon, McGinnis, & Krauss, 2013) as predictors of student success, these criteria were not utilized as nursing program admissions criteria in the programs presented in this study.

Therefore, this study will provide new research where there had previously been a gap in the available literature, by analyzing the statistical correlation between various admissions criteria and applicants actually entering the nursing profession. This research may be used by ADN program admissions officers to help predict which applicants will be successful in entering the nursing profession. By using this strategy, the limited number of program seats will be filled with applicants who are most likely to succeed. Further, this research can be used to identify which students are not ready for the rigors of the nursing profession, and offer them the support they need to prepare for entry into the program at a later date.

### **Overview of the Nursing Profession**

Prior to the 17<sup>th</sup> century, nursing care consisted of religious organizations providing hygiene and comfort to patients and their families. Over time, the role of the nurse has changed dramatically. Today, the demands of the Registered Nurse (RN) cannot be overestimated. RNs are required to possess an enormous amount of knowledge pertaining to pharmacology, pathophysiology, treatment options, interventions, symptomology, and the like which exist over the lifespan from birth to death. Therefore,

it is increasingly necessary to choose applicants who will be able to be successful in entering the nursing profession.

### **Projected Job Growth**

The Bureau of Labor Statistics (2017) projected job growth of RNs to be 16 percent from 2014 to 2024, which is higher than the average projected growth rate for *all* occupations. Considering these demands and job growth predictions, admissions criteria used for schools of nursing are a critical component in the selection of applicants who will ultimately be able to obtain a license, and provide safe patient care. Examining the admissions criteria into nursing schools allows for recommendations for changes in the existing admissions criteria used, so applicants can be selected who are most likely to be successful in entering the nursing profession.

### **Clinical Nurse Shortage**

The United States will need to produce 1.1 million new RNs by 2022 (ANA, 2014). The nursing shortage will increase in severity if the rate of nursing school graduates who are successful on the NCLEX-RN does not improve. This is another reason why it is important to select applicants who are most likely to be successful in entering the nursing profession.

As the economy recovers from the recent recession, nurses who went back to work at that time for financial reasons will soon be able to return to their “pre-recession working status” (Snavey, 2016, p. 98). While it can be assumed that some nurses are not in the profession for financial gain, some nurses are working for a paycheck and those nurses will leave nursing once they are able to afford to do so. Although nursing is a rewarding profession, it is also stressful and demanding not only to the nurses, but to

their families as well (Snavey, 2016). Therefore, nurses who are concerned with reducing their stress level, and are also concerned with how their career choice may be negatively impacting their home life, may also leave the profession. In terms of the severity of the nursing shortage, one alarming statistic is that over half of the RNs working today are over the age of 50; one million nurses will be eligible for retirement in the coming years (AACN, 2017).

### **Nurse Faculty Shortage**

Compounding the issue of the clinical nurse shortage, is the nurse faculty shortage. The nurse faculty shortage is disabling nursing programs from admitting all of the qualified applicants presenting themselves (AACN, 2017). This inability to admit qualified applicants is occurring at a time when the need for RNs is at an all-time high. Factors that are adding to the faculty shortage are schools of nursing budgetary constraints, an aging faculty (the average ages of doctoral-prepared nurse faculty holding the ranks of professor, associate professor, and assistant professor were 62.2, 57.6, and 51.1 years, respectively; for master's degree-prepared nurse faculty, the average ages for professors, associate professors, and assistant professors were 57.8, 56.6, and 50.9 years, respectively), and healthcare facilities competing for nurses (and offering significantly higher salaries) (AACN, 2017). Worse, salaries of nurse educators remained notably below those earned by similarly ranked faculty in other disciplines across higher education (National League of Nursing [NLN], 2014).

In an effort to assist in relieving the faculty shortage, the AACN is attempting to secure federal funding for faculty development programs, collect data regarding faculty

vacancy rates, work towards developing solutions to alleviate the faculty shortage, and focus media attention on the faculty shortage (AACN, 2017).

A special survey on vacant faculty positions (AACN, 2017) revealed a total of 1,567 faculty vacancies. The data show a national nurse faculty vacancy rate of 7.9%, and most of the vacancies (92.8%) were faculty positions requiring or preferring a doctoral degree (AACN, 2017). Therefore, there is more specifically a doctoral prepared faculty shortage, which is clearly more challenging to address.

**Factors impacting faculty shortage.** Due to this faculty shortage, adjunct faculty are used for prerequisite courses, such as Anatomy and Physiology, as well as for courses in nursing programs. The American Association of University Professors, reported that over 70 percent of college level faculty in the United States are adjunct or contingent faculty (American Association of University Professors [AAUP], 2017). Gies (2013) notes that several factors are impacting the need to utilize adjunct faculty in nursing schools. These factors include: the advancing age of full-time nursing faculty, the low faculty salaries as compared to the higher clinical setting salaries, and the enormous workload of full-time faculty positions (Gies, 2013). With these considerations in mind, it is clear that colleges are challenged with attempting to secure qualified, effective, and engaged adjunct faculty members. Gies (2013) makes recommendations for strategies to help these professionals in the clinical setting, which ultimately will lead to improved student and patient outcomes.

### **Blended Learning**

Another option to alleviate the nurse faculty shortage and limited seats available in associate degree nursing programs is blended learning.

A blended learning environment uses web-based and face-to-face teaching strategies that promote student satisfaction among adult nursing students.

Blended learning is presented in a synchronous and asynchronous learning format. Online only learning, in contrast to blended learning, is a separation of teachers and learners. Blended online learning with live, interpersonal experience provides nursing students and faculty the best of both worlds. It allows more flexibility among adult nursing students who are juggling family, work, and education simultaneously. Adult learners in a blended online learning environment report more satisfaction than that of adult learners in traditional and online only learning formats. (Pope, Kellner, & McLarty, 2010, p. 2)

Studies have been conducted that explored the use of blended learning formats in associate degree nursing programs. Cook, Dover, Dickson, Underwood, and Engh (2014) explored the process of developing a hybrid associate degree nursing program. Changing formats from traditional into hybrid nursing classes presented challenges for faculty and for students (Cook et al., 2014). Challenges that faculty faced included increased time required to develop a course and include on-line activities, lack of support for course redesign, and becoming technologically savvy enough to help students with technology issues. Whereas, student challenges involved learning what hybrid courses were, becoming more self-directed, and managing their time effectively to complete the coursework (Cook et al., 2014). These researchers demonstrated how after overcoming initial resistance from the students, the hybrid format has become a first choice among students (Cook et al., 2014).

Similarly, Abdulla (2012) examined students' attitudes towards online learning in pharmacy technician and practical nursing programs. Abdulla suggested that although students exhibited a negative attitude towards the online version of the Pharmacy Math course, participation in the course was found to improve the students' writing ability, time management skills, and their ability to learn independently. It was also found that students' preferences included a pre-course orientation, and a well-organized course that was easy to navigate. Although students expressed anxiety throughout the online course, in the end, students stated that they would take another online course, however, they preferred the hybrid model (Abdulla, 2012).

The use of hybrid format courses in nursing programs may help to increase the number of available seats. Moreover, the use of hybrid format courses in nursing programs may also make it easier for some students to earn a nursing degree. Students who are unable to attend face-to-face courses due to issues such as a lack of childcare, or limited access to transportation, may benefit from hybrid format courses. The hybrid format allows students to reduce the amount of time spent away from home, while still being able to complete required coursework. This method of instruction is a useful option for nursing schools, and needs to be studied further in order to determine which online learning activities are best suited for nursing content, and which learning activities lead to positive student outcomes.

### **Increasing Patient Acuity**

Nursing school admissions criteria improvement is also important because there is an overwhelming, and increasing need for qualified nurses who can provide high-quality patient care. This need of nurses with a strong knowledge base is attributed to



advancements in medical technology (Ishihara, Ishibashi, Takahashi, & Nakashima, 2014). These technological advancements have increased patient acuity. In the past, when medical technology was not as developed, patients were not provided with the diagnostics afforded them today (Ichihara et al., 2014). As a result, patients are receiving treatment options early on in their disease process allowing them to live longer lives. These patients, however, have complex medical histories and present with a host of comorbidities, symptoms, elaborate medication regimens, psychological needs, and are in various states of wellness. These patients require and deserve the best evidence-based care available. Nurses largely provide this care.

The need for new nurses is more necessary than ever before, as patients are more acutely ill and older than in the past (Spector et al., 2015). To further compound the issue, patients have multiple comorbidities and are being discharged from healthcare settings within shorter periods of time than in the past. Therefore, in addition to their medical issues, patients also grapple with social and economic issues. The increase in the complexity of health care compounded medical errors (Spector et al., 2015). This patient population presents a need for expert care. It is not unusual to have patients with morbid obesity, who are on multiple medications, are fragile diabetics, and are experiencing multisystem failure. Multiply this scenario, by a high nurse-to-patient ratio, and you have a cause for alarm. This hypothetical case study depicts why it is crucial for nursing schools to more carefully select the applicants who will occupy the limited number of available seats.

All of these factors combined are creating a nursing shortage crisis that cannot be underestimated. The Affordable Care Act (ACA) will provide healthcare to people who

had not have access in the past thus further increasing the demand on nursing (U.S. Department of Health and Human Services [USDHHS], 2014). Steps should be taken to produce qualified nurses to replace those exiting, or about to exit, the profession as quickly and efficiently as possible.

### **Admissions Challenges**

The admissions process into ADN programs in schools of nursing has not been studied extensively. Therefore, admissions criteria needed to be examined to determine if there was a statistically significant relationship between particular admissions criterion, NCLEX-RN success, and entering into the nursing profession.

Qualified students are turned away due to a lack of seats in nursing programs at alarming rates. U.S. nursing schools turned away 64,067 qualified applicants in 2016 (AACN, 2017). Therefore, once a student is admitted into a nursing program, it is important that the student has the ability to be successful in entering the nursing profession upon graduation. If that student is not able to be successful in entering the nursing profession, another student, who was not admitted and may have been successful, must now wait until the following semester (or longer) to be able to occupy that seat. Seats in nursing programs are a precious commodity, and the number of nurses that need to be produced has increased. Therefore, having a graduate nurse fail to enter the nursing profession is a hardship for the student, the program, healthcare facilities, the nursing profession, and ultimately patients.

However, the question remains: Would these “qualified applicants” who were turned away, have been successful in completing the nursing program, passing the NCLEX-RN on their first attempt, and in entering into the nursing profession?

Unfortunately, we will never know if these applicants would have been successful because they were never provided with the opportunity to try. Further, it needs to be considered which of these applicants would have been admitted into the nursing program if a more effective admissions process was in place. Perhaps if their noncognitive abilities, and personal and professional experiences had been considered, the applicants who were *not* admitted may have been more successful than the applicants who *were* admitted into the nursing program.

### **Attrition Rates in Nursing Schools**

Research that is used to improve the use of admissions criteria in nursing programs may also help reduce attrition rates in nursing programs. One school of nursing in the Northeastern United States had an 83% graduation rate for their ADN program. While this may seem like a reasonable figure at first, one must consider the 17% of the students who did not make it through the program.

Due to the lack of qualified nurse educators (which is a separate issue unto itself), schools of nursing cannot accommodate the number of qualified applicants into their programs. Couple this issue with the personal and financial harm to the individual student, and one can see how these attrition rates are unacceptably high. Therefore, a statistical analysis of admissions criteria which can help predict which applicants will ultimately enter the nursing profession is necessary.

Attrition rates in nursing schools have been researched, and it has been found that policy tended to impact student nurse attrition rates (Merkley, 2016). Although there are many factors that impact a student's success, such as academic preparation and performance, the student's health status, and socioeconomic status, there are other

factors, not commonly considered, such as: program progression policies, and non-uniform grading policies that can also influence student success or failure (Merkley, 2016).

Several factors can cause students to drop out of nursing programs. These factors include: incivility of faculty towards students, inadequate clinical placements, inconsistent grading between programs, and students being unable to repeat a failed course due to either lack of course offering, or lack of a seat in the course (Merkley, 2016). Certain factors have been shown to improve student retention rates in nursing programs. Examples of these factors were: having faculty mentors meet with students throughout the semester, reducing the clinical faculty-to-student ratio to 1:8 (typically 1:10) in clinical areas, and making changes to curriculums to improve NCLEX-RN pass rates (Merkley, 2016).

### **Identifying At-Risk Students**

It is important to identify which students have the capacity to succeed in nursing programs upon admissions to alleviate attrition rates. However, educators owe a debt to those students who are not *yet* ready to be successful in nursing programs. By identifying deficiencies, difficulties or challenges that some students face, these students can be fortified by using strategies and implementing interventions that will better prepare them for success in nursing programs.

It is also important to have a diversified student population succeed in our nursing programs. Not only will having a diversified student population benefit our program directly, but it will also provide an indirect benefit to the diverse patient population these students will serve once they become practicing nurses. Once students of color are

admitted into nursing programs, faculty members need to make efforts immediately to ensure these students' success, since according to the AACN (2013) African Americans are least likely to graduate than other ethnic groups. Disadvantaged minorities from rural backgrounds are particularly at risk of not being successful in nursing programs.

Students from rural backgrounds are also at risk of not completing nursing programs (Tabi, 2016). The overall effectiveness of a diverse nursing workforce program that was funded by the U. S. Department of Health and Human Services (USDHHS) called the RUN 2 Nursing program was examined by Tabi (2016). This program attempted to improve academic outcomes for disadvantaged minority nursing students from rural backgrounds, by utilizing a combination of faculty mentoring and peer tutoring (Tabi, 2016). The findings were impressive with a 93% NCLEX-RN pass rate, and a retention rate also of 93%, both above the national average of 83.94% for the NCLEX-RN in associate degree programs (NCSBN, 2017) and 80% graduation rate from associate degree programs nationally (NLN, 2014).

Additionally, Black students in predominately White nursing programs require strategies which are specifically focused upon improving academic success (Dapremont, 2014). Strategies such as: keeping a daily routine, meeting with a diverse peer study group, reading the course content, and the use of note cards have been found to improve academic success for this student population (Dapremont, 2014). In order for these students to be successful, they need to be able to concentrate their energy, work hard, and remain focused upon their schoolwork (Dapremont, 2014). This is useful information that nurse educators need to provide to their students early in their program to facilitate success for this student population (Dapremont, 2014).

Black nursing students in predominately White nursing programs experience struggles with isolation, a need for support, and a need for positive faculty involvement (White & Fulton, 2015). Since lack of diversity is a challenge in nursing, it needs to be approached in a multifaceted manner that includes creating a culture of inclusivity in nursing programs (White & Fulton, 2015). Therefore, nurse educators need to be cognizant of challenges and solutions that exist for minority students, and take action to help ensure student success in order to improve attrition rates in nursing schools.

**Mentoring.** The use of a mentor to assist minority students has also been used to address challenges with nursing school attrition rates for minority students (Crooks, 2013). For example, Mentoring Ethnically Diverse Nursing Students To increase Overall Retention (MENTOR) which is a 16-week mentoring program, is a strategy that helped improve retention rates of minorities in nursing schools (Crooks, 2013). Educators need to be aware of the experiences and thoughts of minority students, particularly those who are enrolled in predominately White nursing programs (which is reflective of some areas in the Northeastern United States) to help ensure their success.

Wilson, Sanner, and McAllister (2010) examined a formal mentoring program involving ten faculty mentors and their 30 student mentees. The faculty mentors were provided with workshops on cultural competence, and mentoring prior to the start of the program. The faculty mentors engaged in role modeling the behaviors of caring nurses for the student mentees. The faculty mentors believed that the students were able to feel that they cared for them. Ultimately, all but one of the students were successful in passing the NCLEX-RN on their first attempt. The student mentees reported that the faculty mentors provided support that they had never experienced before participating in

the mentoring program. This support helped them gain the self-confidence they required to be successful. The student mentees shared that in working with their faculty mentors, they were able to gain new insight into the nursing profession. The student mentees felt that working one-on-one with the faculty mentors improved their ability to study, take notes, and take tests. In the end, both faculty mentors and student mentees expressed positive perceptions of the mentoring program (Wilson et al., 2010).

### **Strategies to Reduce Voluntary Attrition Rates**

In addition to attrition rates being caused by a lack of academic success, some nursing students voluntarily withdraw after they discover the challenges and demands of becoming a nurse. If students are provided with information about what nursing entails, they may reconsider this career choice prior to applying to a nursing program. An “Introduction to Nursing” course that informs students what nurses do, may reduce voluntary attrition rates in nursing programs, because the students will be more aware of the demands of the profession (Edmonds, 2013). Students who have had the opportunity to take an introduction to nursing course have been found to feel a closer connection to the program, and had a more realistic understanding of the demands of the profession, thereby reducing the probability of voluntary attrition from the nursing program (Edmonds, 2013).

Other interventions that can be implemented to help address retention of nursing students in associate degree nursing programs are: stipends, learning communities, orientation, individualized academic planning, counseling, peer tutoring, and mentoring (Fontaine, 2014). Identifying and developing useful strategies to reduce attrition rates in nursing programs is necessary to ensure that the scarce seats in nursing programs are

filled with students who understand the rigors of the program and profession, and still wish to continue on that path (Edmonds, 2013; Fontaine, 2014).

### **Retention Rates in Nursing**

Improvements in the admissions criteria used to help select the students most likely to succeed on the NCLEX-RN are also important due to low retention rates in nursing. In addition to the nursing shortage, nurse retention is also negatively impacting healthcare. For example, approximately 17.5% of new nurses leave their first job within one year of starting their jobs (Kovner, Brewer, Fatehi, & Jun, 2014). The challenge of retaining nurses is impacting healthcare in that there is a huge cost to healthcare facilities to train, and then quickly lose, nurses. The average cost of nursing turnover ranges from \$37,700 to \$58,400 per nurse, which means that hospitals can lose \$5.2 million to \$8.1 million annually (National Healthcare Retention & RN Staffing Report, 2016).

Additionally, low retention rates impact healthcare, due to higher patient acuity. As a result of technological advancements, there is higher patient acuity requiring highly skilled nurses to provide positive outcomes (Ishihara et al., 2014). Without an adequate supply of skilled RNs, these high acuity patients may be placed at risk of sustaining poor health related outcomes. It is largely for this reason that low nurse retention rates need to be combated with the ability to predict which applicants will ultimately enter the nursing profession at the point of admissions into nursing programs.

### **What Makes Nurses Want to Leave Nursing?**

The demands and difficulties of the job were reasons why new graduate nurses (NGNs) were considering leaving the profession (Unruh & Zhang, 2013). These demands and difficulties included: receiving incorrect information on how to do things,



specific rules within the organization where they were employed, insufficient assistance from colleagues including management and co-workers, and not having enough time to get things done properly (Unruh & Zhang, 2013). However, the leading predictors of nurses wishing to leave nursing were stress and burnout (Hultell, Rudman, & Gustavsson, 2013).

In fact, after five years, one out of five nurses plan on leaving the profession (Hultell et al., 2013). Admissions professionals need to consider the impact a more effective admissions process may have on these statistics. For example, if these nurses who opt to leave the profession after five years were admitted into their nursing programs based upon their nonacademic characteristics, including resilience and achievement motivation, perhaps they would be less likely to leave the profession after such a short period of time. An admissions process which gives weight to an applicant's healthcare experience, and a self-reported sense of team awareness, may help to admit applicants who will remain in their chosen profession longer than five years.

Because nursing is a demanding profession which requires a large amount of knowledge and skill, NGNs who feel competent are more likely to remain in nursing. NGNs who view themselves as more competent have a higher degree of commitment to the nursing profession, and nurses who feel that they lack empowerment have a desire to leave their job (Numminen, Leino-Kilpi, Isoaho, & Meretoja, 2015). Researchers have found that there is a correlation between competence and empowerment (Numminen et al., 2015). Therefore, nurse leaders would benefit from focusing attention onto competence development, as well as incorporating methods for developing a sense of empowerment into new nurse orientation programs.

**What Makes Nurses Want to Stay?**

Utilizing effective strategies to improve the retention of nurses is necessary, and has been researched (Phillips, Kenny, Esterman, & Smith, 2013). Ensuring that there is a smooth transition from nursing school into nursing practice is necessary in order to improve job satisfaction (Philips et al., 2013). Specifically, NGNs must be placed into situations and units appropriately in order to ease their transition, and NGNs should not be expected to be able to make complicated decisions early on in their careers (Philips et al., 2013). Further, specialty areas should be assigned later in their transition, once the NGNs have had a chance to acclimate to nursing (Philips et al., 2013). Additionally, patient acuity has to be considered when assigning new nurses to their districts (Philips et al., 2013). Lastly, not only do new nurses require detailed orientation programs, they also require positive feedback from senior nurses (Philips et al., 2013). These factors need to be considered by nurse leaders to improve nurse retention rates. If nurses are satisfied at work, they are more likely to remain in the field. Therefore, improving job satisfaction in nursing will also improve retention rates.

Specific causes of nursing job satisfaction have been studied and identified. For example, nurses had more job satisfaction when they felt they had good relationships with their managers, as well as when they felt supported by their organizations (Shacklock, Brunetto, Teo, & Farr-Wharton, 2014). Additionally, when nurses felt more satisfied with their jobs, they were more committed to their organizations and less likely to quit their jobs (Shacklock et al., 2014).

Similarly, transition programs, which were offered to nurses, helped establish supportive working environments (Missen, McKenna, & Beuchamp, 2014). Although

transition programs may vary somewhat, they should all include some combination of classroom teaching, simulations, multidisciplinary rounds, case study work, and the assignment of at least one preceptor (Missen et al., 2014). The preceptors in these programs need to help the NGNs with social factors by acting as role models, and by demonstrating professional behavior (Missen et al., 2014). This support may lead to increased job satisfaction, and result in improved retention rates (Missen et al., 2014).

Unfortunately, when nurses are in school, their clinical experiences are limited, and therefore, are very unlike the reality they will face once they begin working as a registered professional nurse. While in nursing school, it is not uncommon for a student to be assigned to one patient, and only be able to assist the patient with a few of his/her needs. Whereas, once a nurse begins working, he/she may have 15 patients and have to address multiple, complicated health-related needs. Therefore, it is not surprising when NGNs become overwhelmed and intend to leave nursing (Zhang, Wu, Fang, Zhang, & Wong, 2017).

**Magnet Designation.** Another method of improving nurse retention rates is by hospitals becoming Magnet designated. In fact, as the name would suggest, a Magnet designated facility has the ability to attract, and hold onto nurses. A Magnet designated facility is one that has been recognized by the American Nurses Credentialing Center for excellence in patient care in more than 35 areas of focus throughout the hospital. One of these areas of focus, for example, includes the quality of nursing leadership (American Nurses Credentialing Center [ANCC], 2011). In order to fulfill this criterion, leadership needs to demonstrate a strong sense of advocacy and support for nursing staff and patient care (AACN, 2011). This advocacy can be accomplished by having nurses participate in

decision making, and, the organizational structure should be one that is decentralized, exhibiting a shared decision-making process (AACN, 2011).

Further, the chief nursing officer should serve as an influential member of the organization's highest decision-making body, and the nurse leaders need to possess visionary and transformational characteristics and always remain both visible and accessible (AACN, 2011). Nurses who are more satisfied with their jobs are less likely to leave nursing, and nurses who do not experience burnout are also more likely to stay in nursing. Magnet hospital nurses were 18% less likely to be dissatisfied with their job, and 13% less likely to report high burnout than their non-magnet designated counterparts (Kelly, Mchugh, & Aiken, 2011).

### **Limitations and Scope of This Study**

There are limitations regarding this study. One limitation was that the sample was one of convenience. Additionally, the study convenience sample was from one school of nursing, containing multiple nursing programs, and therefore, the findings may not be generalizable.

### **Expected Contributions of This Research**

The expected contribution of this research is to provide information that may be used to positively impact the admissions of students into ADN programs in the Northeastern United States who are likely to be successful in entering the nursing profession.

Due to various factors, such as the nursing shortage, limited number of seats available in nursing programs, coupled with low retention and high attrition rates, it is necessary to use an admissions process designed to select the candidates who are most

likely to succeed. Although other studies have been completed that examine predictors of student success, many explore predictors such as GPA or course grades that are earned *after* the student completes one or more semesters in the program. This study attempts to predict which students will be successful in entering the nursing profession at the point of admissions, so that every student admitted will likely be able to work as a nurse upon completion of the program.

### **Plan of This Dissertation**

The purpose of this research was to examine the admissions criteria that have been found to be statistically significant to predict whether or not an applicant will be successful in entering the profession of nursing. The information provided by this research may be used to make recommendations for schools of nursing to improve their admissions process for the purpose of increasing the number of nurses in the profession.

I was admitted into the nursing program under study in the past. When I was admitted, it was strictly due to my academic success, which included A's in all of the prerequisite courses. However, I had also earned a baccalaureate degree, had diversified work experience, and was eager to become a nurse educator prior to being enrolled into the nursing program. Yet, none of those factors assisted me in gaining entrance into the nursing program. At that time, there were approximately 700 applicants for 60 available seats. Because I was aware that only my academic success in the prerequisites would count towards my admission into the program, I enlisted the help of a tutor to ensure that I would earn high grades. Luckily for me, I had enough money to afford the \$50.00/hour tutor's rate. I wonder how many individuals would like to be a nurse, and possess important traits and characteristics, but lack the funds necessary to hire a tutor to help

them earn the grades they need in order to be admitted into a nursing program that focuses solely on past academic success. A holistic admissions process may be able to make the process fair for all applicants, and allow more individuals the ability to gain entrance, who were previously overlooked.

Another potential contribution of this study will be to use the information to begin a process of targeted recruitment into nursing programs. Once it is determined what the characteristics are of an individual who can successfully enter into the nursing profession, actions can be taken to locate and recruit individuals who fit the profile. Thereby, maximizing the success rate of enrollees of nursing programs. Additionally, this study provided information where there had been a void in the literature related to admissions into ADN programs.

### **Chapter Summary**

This chapter provided an explanation of the purpose of this study. In order to further highlight the need for this type of research, a comprehensive overview of the profession of nursing was provided as well. Within the overview of the nursing profession, statistics pertaining to the staggering projected job growth anticipated in nursing, the severity of the clinical nursing shortage, and nurse faculty shortage, and the issues involved with the use of adjunct faculty to alleviate the faculty shortage, were discussed. To help clarify the role of nursing, information was provided about the increasing patient acuity that is occurring worldwide due to advancements in healthcare.

In order to further expand upon the urgency of the challenges facing nursing schools, the admissions process and issue of attrition rates were discussed. The identification of nursing students who are at risk, and available interventions was covered

in detail. In addition to the challenges nursing schools face, healthcare facilities also face challenges related to low nurse retention rates. Therefore, an overview of what makes nurses want to leave, and what interventions can improve nurse retention were examined. Finally, the expected contributions of this study, as well as the plan for this dissertation were discussed.

The following chapter provides a review of the available literature regarding factors that predict academic success on admission, factors that predict student nurse retention and NCLEX-RN success, factors that predict nonacademic characteristics, and the issues involved with the use of adjunct faculty as it relates to admissions.

## CHAPTER II

### REVIEW OF THE LITERATURE

The increasing need for qualified nurses, coupled with low NCLEX-RN pass rates, lead to this dissertation topic. This dissertation focuses upon the need to be able to predict which nursing school applicants are most likely to be successful in entering the nursing profession, *prior* to their being admitted into the nursing program. Since there is a limited number of seats available in nursing programs, selecting applicants with the highest probability of successfully entering the profession is imperative. Once a nursing school commits to the selection of their applicants, and the limited number of seats in their nursing programs are filled, it is crucial that the selection process utilized was one that will yield the highest possible number of qualified nurses. To better understand the importance of the admissions process in nursing schools, details about this process are provided within this chapter.

#### **Admissions Process**

The admission process into any type of pre-licensure program is a critical event for both the student and the institution. It is important to the students, in that they have decided on the profession they would like to pursue, and they have found an institution that seems to be able to provide the education they need to reach their goal. The admissions process is also crucial to the institution because it can help in selecting applicants who are likely to succeed in the selected program, which will improve retention rates. When these students then pass any required licensing or certification examinations, this will improve the institution's NCLEX-RN pass rates, which is



necessary to meet accreditation requirements (Accreditation Commission for Education in Nursing [ACEN], 2017).

If the admissions officer selects the right applicants, all parties will benefit. However, if the institution selects an applicant who will either voluntarily drop out, will not be academically successful, will not be successful on the state board of licensing examination, or will not enter into the nursing profession, that will cause a hardship to both the student and the institution (ACEN, 2017). Therefore, the admissions criteria need to be carefully considered, and assessed for data driven improvement recommendations.

During the admissions process, predictors of academic success need to be identified, and other nonacademic strengths or characteristics should be explored at this time as well. Examples of these nonacademic strengths or characteristics are: diversity, leadership potential, future educator potential, integrity, empathy, team awareness, and professionalism. Identifying nonacademic traits are useful in predicting future behaviors and abilities once the student graduates and begins working in the nursing field (Felix et al., 2012; Hubbard, 2015; Moser & Dereczyk, 2012; Thrasher, 2012).

Although a thorough literature review was conducted, few studies were found that were related to the admissions criteria used specifically in ADN programs. However, several articles were located which involved the admissions criteria used for programs in other healthcare disciplines, including: nurse anesthetist school, medical school, physician assistant school, and dental school. Therefore, those studies were also presented here, and were examined for their application in ADN programs.

### **Best Predictors of Academic Success**

Predicting student success is a valuable tool for maximizing the use of the limited available seats in nursing programs, and ultimately, for helping to alleviate the nursing shortage. Therefore, predicting student success as early as possible is beneficial. Some studies examined predictors of student success during the admissions process (Elkin, 2015; Foley & Hijazi, 2013; Oliver, Hecker, Hausdorf, & Conlon, 2014; Ortega et al., 2013; Schripsema et al., 2014; Simon, McGinniss, & Krauss, 2013), while others explored predictors that can be identified at later points in the program (Chen & Voyles, 2013; Herrera & Blair, 2015; Schroeder, 2013; Trofino, 2013; Yeom, 2013), such as after the first or second semester. All studies are presented for their potential contributions. However, the studies that are most appropriate for this research are the ones that identify the probability of success at the point of admission.

**Grade point average.** Schripsema et al. (2014) conducted a study in the Netherlands, which compared three admissions processes into one medical school, and assessed related academic performance. The first part of the study explored whether students who were admitted into medical school based on having the highest pre-university grades, or having volunteered for a multifaceted selection process, or being admitted based on winning a lottery, varied in academic performance (Schripsema et al., 2014). The second part of the study explored whether the applicants who were selected using a multifaceted selection process performed better than their peers who had not been selected via this process (Schripsema et al., 2014). The last part of the study examined whether participation in the multifaceted selection process was associated with academic performance (Schripsema et al., 2014).

The results of this study suggested that the highest pre-university GPA was the best predictor of academic performance (Schripsema et al., 2014). The multifaceted selection process was more suitable for predicting non-academic skills. In addition, participation in this process also predicted higher academic performance (Schripsema et al., 2014).

Ortega et al. (2013) conducted a similar study that also examined GPA. Ortega et al. (2013) examined available evidence for evaluating nurse anesthesia program applicants. These evaluations were used to attempt to predict success in the nurse anesthesia program, and success on the national certification examination (Ortega et al., 2013). As a result of the limited number of studies that were specific to nurse anesthesia programs, Ortega et al. (2013) also examined sources related to graduate nursing programs.

Ortega et al. (2013) found that the students' overall grade point average (GPA) and undergraduate science or nursing GPA, the quality of goal statements and essays, as well as being ethical in nature, being trustworthy, and having good judgment all weighed heavily in predicting student success. Therefore, these studies both suggested that GPA is a factor worth considering when identifying factors that may predict academic success (Ortega et al., 2013; Schripsema et al., 2014).

**Prior healthcare experience.** Foley and Hijazi (2013) conducted a study to determine whether or not applicant performance at multiple mini-interviews (MMI) could predict academic and clinical performance of graduate-entry dental students compared to other admissions criteria.

Their study suggested that there was an association between applicant performance at MMI, and later achievement in the program (Foley & Hijazi, 2013). Additionally, the study suggested that applicants who had earned particular degrees (e.g., medical degrees, anatomy-related degrees) prior to attending this program, also had exhibited academic success (Foley & Hijazi, 2013). Likewise, applicants who had a healthcare experience performed better academically than those who did not (Foley & Hijazi, 2013).

Another study also examined MMI scores. However, in this study, it was in terms of validating whether MMI scores measured multiple attributes (Oliver et al., 2014). MMI scores are used in certain health professional school admissions processes, and are used to assess noncognitive constructs to predict applicants' future performance (Oliver et al., 2014).

Oliver et al. (2014) suggested that MMI scores are valid for the assessment of multiple noncognitive attributes. Therefore, the MMI scoring rubrics should be considered for admissions processes when predicting student future performance and success (Oliver et al., 2014).

**HESI admission assessment.** Another study examined the utilization of the HESI Admission Assessment, and the final grades of three first-semester nursing courses, in terms of predicting student success in an ADN program (Chen & Voyles, 2013). The sample consisted of 506 ADN program students who attended one of the largest community colleges in California. The data were collected from student records and a demographic questionnaire (Chen & Voyles, 2013).

The results of the study suggested that the HESI Admission Assessment is an effective predictor of student success in the first semester, which is when most attrition occurs (Chen & Voyles, 2013). However, it should be noted that delaying the prediction of student success until the completion of the first semester and after the admissions process is not ideal. The student who is not successful has suffered the loss of time, energy, and tuition. The institution has lost the tuition of a potentially successful student, who now must wait until the next program start date to begin, as well as the program-damaging increase in attrition rates (Merkley, 2015).

**Empowerment, resilience, and spiritual well-being.** Beauvais, Stewart, DeNisco, and Beauvais (2013) conducted a correlational study to investigate the relationship between emotional intelligence, psychological empowerment, resilience, spiritual well-being, and academic success in nursing students in a private Catholic university.

The results suggested that while academic success was correlated with empowerment, resilience, and spiritual well-being, it was not correlated with overall emotional intelligence (Beauvais et al., 2013). This study paved the way for additional research that can help address strategies in promoting empowerment, resilience, and spiritual well-being to foster academic success in nursing students (Beauvais et al., 2013).

**Critical thinking appraisal.** Due to the necessity of nursing students' development of critical thinking skills, Crouch (2015) conducted a study which examined the use of the Watson-Glaser Critical Thinking Appraisal as a pre-admissions criterion, in addition to prerequisite GPA, and the National League for Nursing (NLN) pre-admissions

test. A discriminant analysis was computed after data were collected from the admissions files of freshman nursing students (Crouch, 2015).

The results of the study suggested a significant relationship between GPA and the Watson-Glaser Critical Thinking Appraisal, as well as a significant relationship between nursing GPA and prerequisite GPA, and a significant relationship between nursing GPA and the NLN pre-admissions test scores.

Crouch's (2015) study highlighted two important concerns. The first concern is that nursing students at risk of being unsuccessful need to be identified and assisted as early as possible. The second concern is that due to the increasingly complex patient population, it is important for nurses to possess critical thinking skills. This study is especially valuable in that it can be used for making recommendations for improvements in the admissions process of nursing programs, due to its focus on preadmissions assessments.

**Veteran status.** The exploration of whether or not having military experience is a predictor of NCLEX-RN success may be important. Keita, Diaz, Miller, Olenick, and Simon (2015) describe a Veteran Bachelor of Science in Nursing (VBSN) program that has been created in Florida to address both the nursing shortage as well as the unemployment, substandard income, and homelessness faced by the 22 million veterans who reside in Florida.

Since military medics and corpsmen veterans possess unique skills such as leadership, clinical education (primary care, emergency and urgent care, disaster relief, and public health) they are well-suited for the role of a civilian nurse (Keita et al., 2015).

The diversity of the veterans themselves, along with their understanding of the unique needs of fellow veterans (tobacco use; drug use and abuse; rehabilitation after injury or amputation and traumatic brain injury; post-traumatic stress disorder; depression; anxiety; grief; suicide; sexual trauma) makes the VBSN graduates best prepared to care for the 1.6 million veterans residing in the U.S. (Keita et al., 2015).

There are limited data as to the NCLEX-RN success of these graduating veteran RNs due to the newness of the program. However, two out of three graduates are working as nurses in Florida at this time (Keita et al., 2015). This study provides a useful model which could be applied to the creation of a Veteran ADN program. A Veteran ADN program in the Northeastern United States would provide qualified nurses to reduce the staffing burden of the 80 Veteran Administration (VA) healthcare facilities in New York State (U.S. Department of Veteran Affairs, 2017). Further, a Veteran ADN program in the Northeastern United States would provide nurses who would be able to provide care for the 921,400 veterans who reside in New York (New York State Department of Labor, 2013).

### **Predicting Retention and NCLEX-RN Success**

Since ADN and Bachelor of Science Nursing (BSN) programs are both rigorous and challenging, it is beneficial for ADN programs to examine what criteria BSN programs use to predict student success upon admission. Further, NCLEX-RN success is a requirement of entering into the nursing profession. Below are four studies that are related to ADN and BSN programs of study that have examined factors useful in the prediction of student success.

**GPA and ACT scores.** Elkins (2015) investigated predictors of retention and NCLEX-RN success in a BSN program. Elkins (2015) noted the importance of identifying predictors in an effort to produce nurses who will be academically successful, and therefore, able to alleviate the nursing shortage. Elkin's (2015) quantitative retrospective study examined preprogram GPA, American College Testing (ACT) scores, anatomy and physiology scores, and/or HESI Exit Examination scores as possible predictors of completion of the BSN program, and passing the NCLEX-RN.

Elkins (2015) utilized a convenience sample from two graduating classes in a BSN program, and collected data from student records. Of the 187 students who met the criteria for the study, 136 students completed the program, and 51 students did not (Elkins, 2015). The results of the study suggested that the best predictor of retention and NCLEX-RN success was preprogram GPA and ACT scores (Elkins, 2015). The study also suggested that the HESI Exit Exam score range that best predicted NCLEX-RN success on the first attempt was 950 and above (Elkins, 2015).

Creech, Cooper, Aplin-Kalisz, Maynard, and Baker (2018) also researched factors that can be used to predict academic success and found that GPA, older age, and minority race were significant predictors of student outcomes. The student's GPA positively affected student outcomes, and older age and being a minority adversely affected student outcomes. The program that the researchers examined was an online doctor of nursing practice (DNP) program, and their method was an examination of five years-worth of admission and retention data that had been collected ( $n = 144$ ).

Creech et al. (2018) used the composite persistence model Rovai (2003) as the theoretical framework for their study, which focused upon factors that can impact student



outcomes specifically in online programs. As a result of their study, they recommended that GPA continue to be used by admissions officers as a predictor of student success, they also recommended retention committees need to be created to support older and minority students.

**Gateway course grades.** Herrera and Blair (2015) also recognized the need to predict the probability that a nursing student will complete the program, and be successful on the NCLEX-RN. Their study examined the use of grades on gateway courses (e.g., Human Pathophysiology, Adult Health) as predictors of successful completion of the nursing program, and receiving a passing grade on the NCLEX-RN (Herrera & Blair, 2015).

Herrera and Blair (2015) conducted an ordinal regression analysis to determine if there was a relationship between the outcome variable, which was successful completion of Adult Health, and the independent variables, which were the grade earned in Human Pathophysiology; the institution where Human Pathophysiology was taken; and the instructor the student had for Adult Health.

The results suggested that there were two factors that were predictors of students successfully completing Adult Health. One factor was the grade earned in Human Pathophysiology, and the second factor was the institution where the student studied Human Pathophysiology.

**Transfer credits.** Due to their interest in implementing prediction and remediation measures for the improvement of NCLEX-RN pass rates in a northeastern BSN program, Simon et al. (2013) conducted a study to explore the relationship between NLN-readiness exam scores and various potential predictors. In this descriptive

correlational study, a regression analysis was conducted using the following independent variables: transfer credits, prerequisites, and four clinical nursing courses (Simon et al., 2013).

The results suggested that transfer credits were statistically significant predictors of NCLEX-RN readiness (Simon et al., 2013). They suggested that transfer credits may be predictors of NCLEX-RN readiness in that prior educational success may indicate older age, and possibly enhanced motivation (Simon et al., 2013).

**Testing policy.** In an attempt to improve NCLEX-RN pass rates and address accreditation standards in an ADN program in Denver, Schroeder (2013) investigated the use of a testing policy to evaluate the curriculum. Areas that were evaluated were test item writing, test blueprinting, and the use of item analysis to improve exams that were created by the faculty (Schroeder, 2013). The testing policy consisted of HESI specialty exams being administered at the end of each course, and HESI exit exams being administered at the end of the first and second years of the program (Schroeder, 2013).

NCLEX-RN pass rates were compared before and after the testing policy was implemented, and the results indicated that the mean pass rate five years after the testing policy was implemented was significantly higher than the mean pass rate five years before the testing policy was implemented (Schroeder, 2013).

**Multiple predictors.** Trofino (2013) conducted a pilot study to examine which were the best predictors of NCLEX-RN success in a private ADN program. There were 24 independent variables including: preentrance testing, preentrance GPA, supporting course grades, repetition of supporting course grades, math and reading subscores and nursing program support grades (Trofino, 2013). A logistical regression was utilized and

the results were statistically significant for preentrance normalized math subscores, a pharmacology course, an advanced medical-surgical course, and were negatively correlated with repetition of nursing courses (Trofino, 2013).

In other words, students were more likely to pass the NCLEX-RN if they were successful in the preentrance normalized math test, the pharmacology course, and the advanced medical-surgical course; students were less likely to pass the NCLEX-RN if they repeated a course (Trofino, 2013).

Another study conducted by Yeom (2013) examined possible predictors of NCLEX-RN success in a Midwestern BSN program. The predictors explored in this study were nursing content standardized tests, which included adult medical-surgical, fundamentals for nursing pharmacology, maternal-newborn, nursing care of children, mental health, community health, and leadership and management (Yeom, 2013). A *t*-test and logistic regression were used to analyze the data, which were collected on 118 graduates who had passed the NCLEX-RN and 33 graduates who did not pass on the first attempt (Yeom, 2013). The results suggested that the adult medical-surgical, fundamentals for nursing pharmacology, and community health standardized tests were effective in predicting NCLEX-RN success and not effective in predicting those who would fail the NCLEX-RN on their first attempt (Yeom, 2013).

### **Predicting Nonacademic Characteristics**

In addition to the examination of academic data as possible predictors of student success, it is also important to explore nonacademic factors as potential predictors of student success. The following studies explored the prediction of nonacademic factors

such as diversity, leadership potential, potential of becoming an educator, integrity, empathy, and team awareness, as well as professionalism during the admissions process.

### **Diversity**

Although increasing diversity is a challenge in healthcare, there are no studies that explore admissions processes in nursing schools to assist in addressing this challenge. However, that is not true of medical schools. One such study, conducted by Felix et al. (2012) highlighted the underrepresentation of minorities being admitted into a physician assistant (PA) program, and the adoption of a holistic admissions process to relieve the problem. In the pre-holistic admissions process, the candidates were evaluated in group interviews, and were chosen based upon interview, essay, and GPA (Felix et al., 2012).

The changes that were made to the admissions process included elimination of the interview, option to do the essay on campus or remotely with a proctor, and the addition of a holistic credit system whereby the applicant would receive a point for each “Holistic Review Attribute” including items such as hardships, socioeconomic status, multilingual, and contact with other cultures (Felix et al., 2012). After these changes to the admissions process were instituted, the PA program increased diversity in their student population (Felix et al., 2012). These changes can be utilized in other programs that are seeking to improve diversity, not only for the direct benefit to their program and students, but for the indirect benefit of the diverse patient population these students will serve after graduation.

Another factor impacting diversity is occurring in higher education, and has recently come to light involving a lawsuit against Harvard University (*Students for Fair Admissions, Inc., v. President and Fellows of Harvard College*, 2018). The suit alleges

that discrimination against Asian Americans exists in Harvard's admissions policies. Moreover, the suit alleges that Harvard's admissions policies favor athletes and children of alumni. This lawsuit is against Harvard, however, for the purpose of completeness in this dissertation, it must be noted that other colleges adhere to admissions policies that impact Asian Americans.

A recent study by Inside Higher Ed and Gallup (Jaschik & Lederman, 2018) revealed that of 499 admissions directors anonymously surveyed, approximately half admitted their colleges hold Asian Americans to higher standards than non-Asian applicants. It was also found that colleges consider race and ethnicity in admissions, as well as for scholarships and summer programs (Jaschik & Lederman, 2018).

These admissions policies need to be addressed in order for fairness to exist in admissions offices. This lawsuit against Harvard will indeed set a precedence for future issues regarding admissions policies. It is for these reasons that this lawsuit must be carefully considered, as well as the impact the lawsuit will have on future lawsuits regarding unfair admissions practices.

### **Leadership Potential**

As the role of the nurse continues to evolve, so too must the admissions process into schools of nursing. Other health related programs, such as a PA program, have examined the consideration of noncognitive factors during their admissions process. In one study, Thrasher (2012) examined the results of a survey which examined noncognitive factors on the admissions process of a PA program. It was found that leadership experience was not a priority consideration on the admissions process according to the results of the survey (Thrasher, 2012). Taking into consideration the

challenges that healthcare providers face, identifying future leaders at the point of admission may be good practice for schools of nursing.

### **Future Educators**

Another noncognitive factor of interest identified by Thrasher (2012) which can be considered upon admissions is the identification of future educators. In PA programs, as in nursing programs, there exists a shortage of faculty. Identifying applicants who have a propensity towards teaching would be beneficial, not only for the applicant, but for the profession as well. Thrasher (2012) shared important ideas for the improvement of admissions processes in PA programs that are applicable for nursing programs as well.

### **Integrity, Empathy, and Team-Awareness**

In another study that explored the use of noncognitive factors on admissions, Hubbard (2015) conducted a study regarding nursing midwife school admissions in the United Kingdom (UK). Hubbard (2015) was concerned that the admissions process was overly focused upon academic ability and discounted other nonacademic attributes. Among the nonacademic attributes that Hubbard (2015) was interested in examining were: integrity, empathy, and team awareness, which are all qualities that are necessary in nursing. Hubbard (2015) pondered whether or not behavioral science could have applications in the nursing school admissions process.

Although Hubbard (2015) revealed that in the UK, Nursing Midwife programs interview their applicants, it should be noted here that the practice of individual interviews would not be feasible in registered nurse programs due to the volume of applicants seeking enrollment into these programs. However, Hubbard (2015) investigated whether or not nursing success (measured by successful completion of the

program and entry into the work force) can be predicted by applying behavioral science to the interviewing process.

Hubbard (2015) found that using a statistical formula that identifies successful attributes is needed to predict student success on admissions. Hubbard (2015) also found that interviews cannot be used as a single deciding factor.

### **Professionalism**

Being able to predict students' future behavior would be useful for admissions officers, as students are a reflection of their programs once they enter their professional fields of study. If students perform well in their fields after graduation, the reputation of their institutions will be impacted positively. However, if students exhibit unprofessional behaviors after graduation, their programs' reputation may be negatively impacted.

One study conducted by Moser and Dereczyk (2012) sought to predict the level of professionalism PA students would demonstrate based upon their personality traits. The Million College Counseling Inventory (MCCI) and a PA Professional Scale were administered to 82 PA students over five years (Moser & Dereczyk, 2012).

A cluster analysis was utilized and two personality clusters (healthy and unhealthy) were compared to each of the 15 professionalism parameters (Moser & Dereczyk, 2012). Healthy personality clusters, such as conscientiousness, were predictive of punctuality, taking responsibility, and other professional behaviors (Moser & Dereczyk, 2012). The unhealthy cluster was negatively correlated with professional behaviors such as trustworthiness and dressing professionally (Moser & Dereczyk, 2012). Therefore, self-reported professionalism was predicted by healthy personality traits, and this type of personality profile can be used as part of an admissions process to yield

students who behave professionally and will thereby ultimately, become better practitioners (Moser & Dereczyk, 2012).

### **Adjunct Faculty**

Adjunct clinical faculty members in nursing programs are part-time faculty members, who typically have other full-time positions as clinicians. As such, they are experts in the clinical arena. The ability to teach students in a clinical setting is challenging. Adjunct clinical faculty also must contend with other challenges, such as being: unprepared to teach, dissatisfied, ineffective, and unable to accurately assess student knowledge.

**Unprepared to teach.** Brannagan and Oriol (2014) discussed the use of adjunct faculty, along with the fact that while these instructors have clinical expertise, they lack teaching experience. Due to the fact that they are not often provided with information about the courses they are teaching until the last moment, these instructors are ill-prepared to teach. Sadly, it is the students who suffer by having instructors who are not equipped to teach them all they need to learn. In addition to the lack of preparation time, these adjunct faculty members also are struggling with juggling other issues, such as the demands of their full-time careers (Brannagan & Oriol, 2014). As a result of these other demands, these instructors can be “less attentive to their teaching responsibilities” (Brannagan & Oriol, 2014, p. 128). While these adjunct faculty members serve a much-needed purpose, some lack the ability to teach.

**Dissatisfied.** Elder, Svoboda, Ryan, and Fitzgerald (2016) conducted a quantitative study investigating the perceived importance and availability of factors, which, lead to adjunct recruitment, retention, and satisfaction. The sample included 80



adjunct faculty members who completed a 25-question Likert-type scale survey, with questions that related to faculty development, academic resources, material questions, services, other resources and miscellaneous opportunities. The results indicated that the top five factors that adjuncts held as important were access to syllabus, library resources, evaluations of teaching, staff assistance with the online course delivery system, and mentoring opportunities with experienced staff (Elder et al., 2016). The bottom five factors included participation in program and departmental meetings, office supplies, discounts on academic events, campus tours, and shared office space (Elder et al., 2016). This study highlighted the concern that while the use of adjunct faculty has risen sharply, these part-time employees are not receiving adequate orientation, evaluation or resources needed to succeed (Elder et al., 2016).

This information is valuable in that a great deal of information regarding changes in curriculum, discussions on program and course improvement, student success issues and the like are discussed at the meetings that the adjuncts do not wish to attend. It was also alarming to note that workshops and seminars with topics related to teaching was not included in the top five choices, although it was a part of the survey. Having adjuncts willingly and enthusiastically attend workshops to help improve their teaching skills is of critical importance for improved student, and ultimately, patient outcomes.

**Effectiveness.** Allison-Jones and Hirt (2004) conducted a study, which not only compared the effectiveness of clinical nurse faculty, but also examined how faculty members view their own effectiveness. Five-hundred and eighty-three part-time and full-time students, and 44 faculty members completed the Nursing Clinical Teaching

Effectiveness Inventory (NCTEI); all students ranked full-time faculty as more effective on all five scales and on the overall score (Allison-Jones & Hirt, 2004).

Allison-Jones (2002) compared the effectiveness of full-time faculty compared to part-time faculty. The Nursing Clinical Teacher Effectiveness Inventory (NCTEI) was utilized for the measurement of teaching ability, nursing competence, evaluation, interpersonal relationships, and personality traits. The sample included clinical nursing students in Associate Degree Programs, and the part-time and full-time faculty who were the clinical instructors in that program (Allison-Jones, 2002).

The study was conducted in three parts. First, the students were provided with questionnaires, which addressed the effectiveness of the full-time and part-time faculty (Allison-Jones, 2002). Next, the faculty completed questionnaires regarding their perceptions of their own effectiveness (Allison-Jones, 2002). The results were compared with pass rates on the NCLEX-RN (Allison-Jones, 2002).

Not surprisingly, the results suggested that the students rated the full-time faculty higher than the part-time faculty in every area, which were teaching ability, nursing competence, evaluation, interpersonal relationships, and personality traits (Allison-Jones, 2002). Additionally, when the responses of the questionnaires were compared with NCLEX-RN pass rates, there was a notable correlation between the student perceptions of overall teaching effectiveness and NCLEX pass rates (Allison-Jones, 2002). Students scored higher when they perceived their clinical instructor to have higher overall teaching effectiveness (Allison-Jones, 2002).

**Grade inflation.** Paskausky and Simonelli (2014) conducted a descriptive

correlational study involving the concerning practice of clinical grade inflation in nursing programs. Nurses have a debt to society to provide safe effective care. Grade inflation has been studied in the past in terms of: clinical instructor's lack of confidence, high risk of student failing, excess work, poor assessment tools, and students' harassment of instructors for higher grades (Paskausky & Simonelli, 2014).

The data were collected over six semesters at a private university; the design was the comparison of a collection of written test grades and clinical faculty assigned grades (Paskausky & Simonelli, 2014). They concluded that there was clinical grade inflation occurring in this study because the student clinical grades did not reflect the students' ability to answer written test questions correctly. Clearly, the students who possess the knowledge base to answer the exam questions accurately presumably will perform better in clinical, however, this was not the case. Their study stressed the importance of clinical faculty effectively evaluating students' clinical performance to ultimately prepare nurses who will care for the society safely and with positive patient outcomes (Paskausky & Simonelli, 2014).

### **Chapter Summary**

Prior research on the admissions process into rigorous programs of study which examined predictors of academic success (i.e., GPA, ACT, gateway course scores, prior healthcare and educational experience, HESI Admission Assessment, empowerment, resilience, spiritual well-being, Critical Thinking Appraisal, and Veteran status) and nonacademic success (e.g., diversity, leadership and future educator potential, integrity, empathy, team awareness, and professionalism) identified a number of factors that can be utilized to improve student outcomes on the NCLEX-RN. Although few studies exist

that are specific to ADN programs, these multidisciplinary studies provided useful research that is applicable to ADN programs.

Research regarding the use of adjunct faculty to offload the faculty shortage was included. Adjunct faculty are often used to teach courses that are prerequisites for nursing programs. The research suggested that among other issues, adjunct faculty chronically inflate grades. When these inflated grades are used by admissions officers, under-prepared students are admitted into rigorous nursing programs, and therefore, this may account for the percentage of students who are unsuccessful.

The next chapter discusses the methodology and research design that was used to help determine predictors of successful entry into the nursing profession.

### CHAPTER III

#### RESEARCH METHODS AND DESIGN

This chapter describes the methodologies, research methods, and research design used in this study of admissions criteria that best predict which applicants will successfully enter the nursing profession. This quantitative, exploratory, hypothesis generating study utilized latent class analysis (LCA) and examined the factors affecting nurse graduate success. No studies were found that used LCA to examine factors which predicted nursing success. Therefore, this was a novel approach. In this chapter, the research questions which guided this study are presented.

#### **Problem and Research Questions**

An understanding of the admissions process into nursing schools needed to be examined in order to select the applicants with the highest likelihood of entering into the nursing profession, and identify those students who are not likely to succeed in entering into the nursing profession. These applicants can be offered academic counseling support, so that they can find an alternate plan for their educational pursuits. Moreover, once a profile describing the applicants who are most likely to enter into the nursing profession was developed, a process of targeted recruitment into nursing programs can be instituted. This process may help increase admissions into nursing programs with the most appropriate applicants.

The following research questions (RQ) guided this study:

RQ 1: Which admissions criteria best predict that New York State Associate Degree Nursing (ADN) program applicants will enter into the nursing profession?

RQ 2: What is the likelihood of individuals entering into the nursing profession, who are veterans (a person who served in the active military, naval, or air service, and was discharged or released under conditions other than dishonorable), have earned prior degrees, and/or have prior healthcare experience?

RQ 3: Which noncognitive traits need to be examined during the admissions process to help identify applicants who are likely to succeed in an associate degree nursing program?

### **Theoretical Framework**

This study was developed upon the structural underpinnings of the triarchic theory of successful intelligence (Sternberg, 1997), the adult learning theory (Knowles, 1996), the theory of self-efficacy (Bandura, 1994), and the theory of achievement motivation (Atkinson, 1964).

#### **Triarchic Theory of Successful Intelligence**

Every person possesses a blend of analytical, creative, and practical abilities. Academic institutions often only recognize analytical skills during the admissions process (Sternberg, 1997). However, creative and practical skills can be more useful in real-world settings, helping to spark innovation in the workplace (Sternberg, 1997). Creative and practical skills are necessary in order to thrive in the nursing profession. It is not sufficient for nurses to obtain concrete knowledge, and memorize factual information. Rather, nurses need to be able to apply knowledge in an ever-evolving clinical setting. In order to enter the profession of nursing, nurses require successful intelligence. In other words, these individuals need to recognize and capitalize on their strengths in areas of intelligence, and correct or compensate for their weaknesses (Sternberg, 1997).

To this end, college admissions officers need to be able to measure creative and practical skills grounded in psychological theory. This way, admissions officers can assess an applicant's full range of skills, and better predict who will be successful in college, and later enter into the nursing profession. Many applicants seeking admissions into nursing programs present with a variety of personal, professional, and educational backgrounds. It may be beneficial to schools of nursing to provide these applicants with credit for these strengths and abilities.

### **Adult Learning Theory**

Adult learners are not willing to commit themselves to learning something until such time that they discover the reason why it should be learned (Knowles, 1996). There must be some gain for learners to invest their efforts, and conversely, some loss for their not learning the material. Therefore, when dealing with adult learners, such as nursing students, it must be directly shown how the adult learner will profit from the investment, or suffer from the lack of investment. Once adult learners perceive a requirement to learn, they become motivated to learn (Knowles, 1996). Adult learners can be motivated by extrinsic factors such as professional advancement and monetary gain (Knowles, 1996). However, the stronger motivational factors are intrinsic (Knowles, 1996). These factors include improved self-image, increased duties, and reaching goals.

Adult learners arrive with the ability to be in control of themselves. Therefore, they have a need to be self-directed, and viewed by others as being responsible and in charge (Knowles, 1996). As such, it is imperative that various options for learning are offered. Adult learners also come equipped with a preexisting knowledge base. New thoughts and expertise can enhance this knowledge base, and when a strong relationship

is created between the preexisting and newfound knowledge, the learning will be long lasting (Knowles, 1996). Bearing this in mind, it is crucial to allow adult learners to include their past experiences with the new information they are gaining, in order to optimize the learning experience.

As is true with any learning environment, readiness is a key factor to identify and address. However, where adult learners are involved, readiness arrives at such time that learning provides the adult learner with the ability to be more effective, and to gain greater satisfaction (Knowles, 1996). Until such time that the adult learner has this realization, no readiness to learn will exist.

Another unique quality of the adult learner is the desire to utilize what is learned. This method of learning is unlike young school-aged students, who, for the most part, engage in learning for the sole purpose of passing a test. As a result of adult learners' past personal and professional experiences, they have a problem-solving view of learning (Knowles, 1996). Therefore, information needs to be presented to adult learners in such a way that it can be utilized, not just for the purpose of gaining information. This utilization of learned information can be seen in nursing programs. For example, the information learned in lecture, is immediately practiced in the laboratory, and then performed in the clinical setting as opportunities present themselves.

### **Theory of Self-Efficacy**

Bandura (1994) wrote that people who have a strong sense of self-efficacy, face difficulties as challenges that are able to be mastered, rather than threats that need to be avoided. Further, people who have confidence in their abilities, will seek out challenges and will firmly commit to mastering them. In the event of failure, these individuals



recover quickly, identify the knowledge needed to succeed, and try harder going forward. Ultimately, these behaviors and beliefs lead to increased accomplishments, reduced stress, and reduced probability of depression. However, people who have a low sense of self-efficacy: avoid challenges, loosely commit when faced with challenges, and focus upon their own deficits. These types of people will also contemplate potential obstacles and adversities rather than focusing on how they may be able to be successful in accomplishing a task. Unlike those with high self-efficacy, those with low self-efficacy, tend to quit easily, are slow to recover from failure, and can be stressed, as well as depressed.

Having a strong sense of self-efficacy is a valuable attribute for a nursing student to possess, due to the rigor of the program, and challenges these students will likely face. Students who drop out of nursing programs often display characteristics of low self-efficacy.

One develops beliefs regarding his/her own self-efficacy in four ways (Bandura, 1994). However, the most effective way is by having personal experience in successfully accomplishing challenging tasks. This information is important in terms of admissions, in that applicants who have, for example, already earned a baccalaureate degree, will likely have an increased sense of self-efficacy because they have already accomplished a challenging task. Similarly, a person who has experience as an army medic, may also have a heightened sense of self-efficacy for the same reason. With these examples in mind, admissions officers need to consider these factors when giving weight to admissions criteria.

The second way Bandura (1994) notes that one develops a sense of self-efficacy is by witnessing others, who are similar to oneself, master challenges successfully. For example, if a nursing assistant witnesses a fellow nursing assistant become a registered nurse, he/she will experience an increased sense of self-efficacy in the area of professional advancement.

The third way one develops beliefs regarding his/her own self-efficacy is through social persuasion (Bandura, 1994). When individuals are told by others that they are capable of mastering challenging tasks, they try harder and are more resilient when difficulties arise (Bandura, 1994). It is for this reason, that teachers need to verbalize their high expectations and their beliefs in their students' abilities, to their students when appropriate.

Finally, and perhaps most interestingly, the fourth way one develops beliefs regarding his/her own self-efficacy, is through mood; a positive mood increases self-efficacy, and a hopeless mood decreases it (Bandura, 1994). Maintaining a positive outlook is facilitated when one has a teacher who projects a positive outlook. Therefore, it makes sense that it is easier for students to succeed academically, when they have a teacher who displays a positive attitude (McGinty, Radin, & Kaminski, 2013).

### **Theory of Achievement Motivation**

The theory of achievement motivation (Atkinson, 1964) is composed of seven postulates and their implications. The first postulate involves one's tendency to engage in an achievement-oriented activity, the incentive value of success in that activity, and the probability of successfully completing that activity. Individuals may be motivated to

perform at a high level if there is sufficient enticement, and they feel that they have the ability to complete the task successfully.

The second postulate suggests the incentive value of an achievement task is equal to the complement of the probability of success. Thus, the incentive to complete a task successfully, carries the same weight as the probability of failing to complete the task successfully. The third postulate, which also deals with failure, suggests that one's tendency to avoid engaging in a task that may result in failure, is impacted by one's motivation to avoid failure, as well as the consequences of the failure, and the probability of the failure. In the same vein, the fourth postulate suggests that the incentive value of failure is equal to the negative of the probability of success. Therefore, individuals consider how a failure will impact them as strongly as they consider the probability of their successful completion of a task.

In terms of motivation to engage in a task, the fifth postulate suggests that individuals tend to engage in tasks based upon the sum of: their tendencies to engage in an achievement task; their tendencies to avoid engaging in a task that might result in failure; and, other extrinsic motivational tendencies. Hence, if the result is that individuals engage in tasks, it is due to a combination of their tendencies, and not a single factor. Therefore, situations that are attractive to approach-motivated individuals, will not be attractive to avoidance-motivated subjects (Revelle & Michaels, 1976).

Similarly, while approach-motivated individuals are not interested in tasks that are too simple or too challenging, "avoidance-motivated subjects will find these the least repulsive parts of an otherwise unpleasant situation" (Revelle & Michaels, 1976, p. 395). Presumably, these individuals take part in achievement tasks due to extrinsic sources of

motivation, other than achievement-oriented ones. Also, addressing motivation, the sixth postulate, suggests that the motivation generated by an ultimate goal, is the culmination of the motivations generated by each separate sub-goal (Revelle & Michaels, 1976).

Therefore, for positively motivated individuals, the most motivating task is one of intermediate difficulty. Lastly, the seventh postulate suggests that the tendency to engage in an achievement-oriented task will persist until the task is successfully completed (Atkinson, 1964). Individuals who demonstrate persistence will try to complete a task until such time that they are successful in doing so.

These seven postulates describe the tendencies individuals possess which determine whether or not they will be motivated to engage in, and successfully complete achievement-oriented tasks. This theory is useful in nursing programs where student engagement and motivation are necessary to achieve positive student outcomes.

### **Overview of Latent Class Analysis (LCA)**

One method for studying discrete (categorical) data is LCA. In its essence, LCA identifies homogeneous, mutually exclusive groups (“classes”) that exist within a given heterogeneous population (Laska, Pasch, Lust, Story, & Ehlinger, 2009). Additionally, LCA explores the covariation between what is observed (manifest variables), and what is unseen, yet explains what is observed (latent variables). Therefore, LCA is useful in data reduction, and in the interpretation of data which are based on multiple variables (McCutcheon, 1987). Once the data have been reduced, and the *set of T classes* (types) has been revealed, the researcher can characterize the *structure* of the latent typology (McCutcheon, 1987).

**LCA design and process.** No attempt was made to test any hypothesis. Therefore, no *a priori* constraints were imposed. The indicator variables were a binary measure. Therefore, a LCA was used for this study. The decision criterion was set at the  $p > .05$  alpha level, which follows standard practice.

It was assumed that there would be least two latent types which either show potential to enter into the nursing profession, or do not. Based upon their observed response patterns, respondents were classified into groups, or classes. These classes revealed similarities on some unobserved construct. An initial estimate as to the size of each class was calculated based upon the survey responses.

The process of conducting a LCA began with the creation of a survey. A URL link for the survey was made available, and the survey was completed by the participants. Once the data were collected and analyzed, the latent classes were revealed. After the classes were revealed, the unobserved heterogeneity was explored and explained.

**Data analysis in LCA.** This study used LCA to estimate latent profile probabilities, classify participants into latent classes, and relate latent class probabilities to covariates. The findings indicated which model was the best fitting model.

**Reliability and validity of LCA.** In order to verify an appropriate class model, a split sample validation was completed by splitting the survey into two equal subsamples, and conducting a 2, 3 and 4-class LCA for each. Once an appropriate class model was identified with split sampling, the survey population was combined again for the verified LCA test. Further, in order for the classes to have content validity, they were characterized in a useful and meaningful manner (Denson & Ing, 2014). The relationship between four covariates (possession of creative and practical skills, high sense of self-

efficacy, adult learner characteristics, and achievement motivation) and latent class membership was examined using a series of multinomial logistic regression analyses (Denson & Ing, 2014; Masyn, 2013). Class membership was the dependent variable, and possession of creative and practical skills, high sense of self-efficacy, adult learner characteristics, and achievement motivation were the independent variables used in the multinomial logistic regression analysis to determine if prior studies and the theoretical framework predicted an individual's ability to enter into the nursing profession.

**LCA: Application in the literature.** Studies in education have been conducted that utilized LCA for topics such as: exploring different profiles of gifted and talented students, investigating whether or not multiple goals in elementary students are beneficial for school achievement, and in higher education where one study examined pluralistic orientation (Castejón, Gilar, Miñano, & González, 2016; Denson & Ing, 2014; Zhang, Watermann, & Daniel, 2016). However, only one study (Lambe & Bristow, 2011) was located which dealt with predicting student performance from attributes identified during the admissions process. In their medical education study, in order to predict future student performance on examinations, the researchers first grouped students into three categories based upon: prior achievement in sciences courses; interview rating at point of admission into the program; and, students' subsequent performance in the course (Lambe & Bristow, 2011). Then, the researchers employed LCA to obtain meaningful information regarding the effectiveness of a student selection process that aimed to predict academic performance on examinations (Lambe & Bristow, 2011). The researchers used logistic regression to triangulate their findings. The results suggested

that students who do well in chemistry, and earn high interview scores, are likely to perform well on subsequent examinations.

This medical education study (Lambe & Bristow, 2011) is relevant to this dissertation in that nurses, like doctors, need to demonstrate nonacademic qualities, as well as academic qualities. Identifying these qualities during admissions is a critical step in the selection of applicants who will have the ability to ultimately enter into the nursing profession. Since, applicants into nursing and medical programs are increasingly presenting with nontraditional qualifications, the admissions process needs to change in order to select the candidates with the highest probability of successfully entering the profession.

### **Research Design**

This section presents the elements of the research design that was used in this hypothesis generating study. Discussed herein are the participants, data collection and instrumentation, data analysis, procedures, measures, ethical considerations, disclosure and control of researcher bias, and potential impacts on human subjects and protection of human subjects, and limitations and benefits of the study.

### **Study Participants**

The participants used in this study were individuals who had graduated from an associate degree nursing program at a community college in the Northeastern United States between 2012 and 2018. Any individual who had graduated from this nursing program during this time period, and passed the NCLEX-RN was eligible to complete the survey. There were no other qualifying criteria necessary. The participants who

graduated from this nursing program during that time frame, and passed the NXLEX-RN, voluntarily completed the confidential, anonymous, online survey.

The study focused on a community college nursing program in the Northeastern United States because of the need to increase the graduation rate, and improve the NCLEX-RN pass rate, which in turn will hopefully alleviate the nursing shortage in the Northeastern United States. This suburban, co-ed, two-year, public community college was founded in 1959. It is among the largest community colleges in the state, based on enrollment (27,000), and the nursing program is one of the largest associate degree programs in the country. Although there are three campuses, the ADN program is only located on two of the campuses. This community college boasts multiple accreditations, among which is the nursing program, accredited by Accreditation Commission for Education in Nursing (ACEN).

The College offers Associate in Arts (A.A.), Associate in Science (A.S.), and Associate in Applied Science (A.A.S.) degrees and certificates in approximately 100 programs of study. The faculty teaching in these programs consists of 463 full-time faculty and 1,510 adjunct faculty. Regarding the students, in 2017, 54% were female, 46% were male. Eighty percent were between the ages of 18 and 24, and 20% were 25 years of age and older. In terms of ethnicity, 52.6 % of the students were White, 7.9% were Black, 18.2% were Hispanic, 3.4% were Asian Pacific, 0.5% were American Indian, and 17.4% had unknown ethnicity.

### **Data Collection and Instrumentation**

One goal of this study was to develop an instrument which would be able to predict whether or not a nursing program applicant would ultimately enter into the



nursing profession. Until now, no instrument had been created which utilized the theoretical framework and literature review contained in this study.

The URL link to the confidential, anonymous, online survey was emailed to students who graduated from the nursing program between 2012-2018 and passed the NCLEX-RN, to avoid personal contact between the participants and the researcher.

The survey, designed for this study, was based upon the theoretical underpinnings of the study, and the review of available literature. The purpose of the survey was to develop a profile that described the characteristics of an individual who possessed the skills and abilities necessary to successfully enter into the nursing profession. The survey also included items which examined demographic information about the participants.

The survey, administered through Survey Monkey ([www.surveymonkey.com](http://www.surveymonkey.com)), contained an informed consent, and 33 items the participant responded to with either a “yes” or “no” and one qualitative, free-text question. Participants did not receive any compensation for the completion of the surveys, and participation in the survey was done on a volunteer basis.

Of the 33 items on the survey, six items were demographic, five were related to the triarchic theory of successful intelligence (Sternberg, 1997), two were related to a combination of the triarchic theory of successful intelligence and the literature review, three were related to the theory of self-efficacy (Bandura, 1994), three were related to the adult learning theory (Knowles, 1996), two were related to the theory of achievement motivation (Atkinson, 1964), 11 were related to the literature review, and one asked why the participant wished to become a nurse.

In order to establish face and content validity of the survey, a team of four experts examined the items and had to match the items to the relevant research and theories. These experts will be met with separately, and were provided with the items, as well as a list of sources where the ideas for the items originated. The experts were members of the academic institution under study and included the dean of the school of nursing, the academic chair of one of the nursing programs, the assistant chair of the same program, and one seasoned faculty member.

For the purpose of reliability, a pilot study was conducted. The survey was distributed to five nurses who had graduated from this Northeastern United States nursing program in the past. The purpose for the survey was explained. The volunteers completed the survey and handed it back to the investigator. Any items that were confusing or difficult to answer were eliminated from the final version of the survey. The responses were entered onto an excel spreadsheet and the actual hard copies of the surveys were shredded. These five nurses will not be included in the actual study. Any responses with 100% agreement were eliminated from the LCA, as they offer no useful information in the determination of latent class membership. The LCA revealed four latent classes within this sample.

### **Data Analysis**

R Core Team (2014) was used for the statistical computing. Microsoft Excel for Mac version 15.30 (170107) was employed in the development and formatting of tabular information.

Once the surveys were completed and returned, the items that characterized the classes were identified. A confirmatory factor analysis (CFA) was used after arranging

survey questions into their latent categories: successful intelligence, self-efficacy, adult learning, achievement motivation, literature review and demographic information. Confirmatory Factor Analysis output was used to assist in determining which survey questions that did not significantly relate to their latent categories, to exclude these items from the subsequent LCA test. The CFA was also used to assist in determining which items were the best measures of individuals entering into the profession of nursing, and then those items were included in the LCA (Denson & Ing, 2014).

Next, Bayesian information criterion (BIC), and adjusted Bayesian information criterion (ABIC) were used to compare the relative fit of the models. Lower BIC or ABIC values are indicative of a superior model when compared with models with higher BIC or ABIC values (Denson & Ing, 2014). The Akaike information criterion (AIC) estimates the quality of each model for a given set of data, relative to each of the other models. Therefore, AIC was used to assist in model selection.

The examination of class homogeneity and separation was the next step. The higher the homogeneity, the higher the probability that respondents in a class will respond the same way to a given item (Denson & Ing, 2014). Items with estimated item probability  $> 0.70$  or  $< 0.30$  indicate high class homogeneity (Denson & Ing, 2014; Masyn, 2013; Wang & Wang, 2012). Items with a probability of endorsing between 0.31 and 0.69 suggest that the items are not homogeneous for that class, and therefore, those responses are not representative of that class (Denson & Ing, 2014).

### **Procedures**

After IRB exemption approval was obtained from Long Island University and the community college in the Northeastern United States, personal email addresses of all

students who graduated from the nursing program from 2012-2018 and passed the NCLEX-RN, as well as demographic data including, gender, ethnicity, highest degree earned, employment status, employment in healthcare status, number of hours working per week, language most comfortable using, and parents' level of education was collected from the nursing department records. These individuals were emailed and asked if they would voluntarily consent to, and participate in, the study by completing the survey within two weeks from the date the participants received the link to the study. Data were collected and analyzed as they became available. A summary of the results was provided to the appropriate personnel at the community college the Northeastern United States.

Once the surveys were completed and the data collected, the LCA was completed. The first steps in the process of conducting a LCA was to set up the R Core Team (2014) statistical computing, and load those data. Once those data were loaded, the variables (items) that offer no variance between participants were extracted. Then using the clean data, the LCA was conducted. After the LCA was conducted, a test for goodness of fit was employed. The item response probabilities were then displayed as latent class marginal means, and then the unconditional class membership probabilities were displayed for analysis as well. The following step was to calculate the conditional posterior class membership probabilities for individual cases.

### **Measures**

The independent variable is that which influences the dependent or outcome variable. For this study, the independent variables were the survey items. A value of one was assigned to items that were answered in the positive (yes), and a zero was assigned to items that are answered in the negative (no).

The dependent, or outcome variables, for this study were whether an applicant ultimately entered into the nursing profession. The outcome variable was impacted by the independent variables in that the item responses were used to describe the characteristics of an individual who ultimately entered into the nursing profession.

### **Survey Item Sources**

The next section provides information regarding the creation of the survey items. Here, it is discussed which items stem from the theoretical framework, and which stem from the available literature. Information on the rationale behind choosing each item to be included in the survey is also discussed.

### **Theory of Successful Intelligence**

The following items were based upon the theory of successful intelligence. Each item was created with the intention of revealing whether or not the applicant possessed a combination of creative and practical skill, which would behoove them in the nursing program, as well as when they become registered professional nurses.

***Good judgment.*** The ability of a nurse to exercise good judgment cannot be overemphasized. As discussed in the theory of successful intelligence, a combination of creative and practical skill is necessary in the workplace. This statement is true in healthcare as well. This item will offer valuable information to this study depending on whether or not the participant self-reports having good judgment.

***Being ethical.*** Nursing is viewed as a profession which holds the highest level of ethics in this country. More than eight in 10 (82%) Americans describe nurses' ethics as "very high" or "high" (Gallup Organization, 2017). Similar to having good judgment,

being a person with ethical standards is necessary in the profession of nursing, as well as for nursing students.

***Being professional.*** Honing the skills of a nursing student to become a professional registered nurse is a complex task. Nursing professionalism can be viewed as a combination of three attributes. These attributes are cognitive, attitudinal, and psychomotor (Ghadirian, Salsali, & Cheraghi, 2014). Whether or not participants self-report as being professional in nature will provide important information.

***Veteran status.*** The item, which seeks to determine the applicant's veteran status, was one that not only is reflective of the theory of successful intelligence, but, was also noted in the literature review (Keita et al., 2015). This information may also be useful in terms of targeted recruitment, as well as the admissions process, depending on the results of the study.

***Bilingual and multilingual.*** Likewise, having a multicultural background was not only related to the theory of successful intelligence, but also was noted in the literature review (Felix et al., 2012). Nurses require the ability to provide culturally competent care, and having the ability to speak other languages may be indicative of possessing a multicultural background.

***Other degrees.*** Determining whether or not applicants have already earned degrees in other disciplines will be indicative of whether or not they are presenting with a variety of educational backgrounds. As per this theory, students who have a varied educational background tend to have favorable academic outcomes.

***Other careers.*** Determining whether or not applicants have already had experience in careers in other disciplines will be indicative of whether or not they are

presenting with a variety of professional backgrounds. Likewise, students who present with varied professional experience, may have positive outcomes.

### **Theory of Self-Efficacy**

The following items were based upon the theory of self-efficacy. Each item was created with the intention of revealing whether or not the applicant possessed behaviors and beliefs that lead to increased accomplishments, reduced stress, and reduced probability of depression. Characteristics such as these are not only beneficial in the nursing program for positive student outcomes, but for nurses working in the healthcare field as well.

***Seek out challenges.*** The theory of self-efficacy suggests that when an individual possesses self-efficacy, he/she is likely to seek out challenges, presumably because he/she feels that are able to emerge victoriously. It would be useful information to determine whether or not a participant will respond in the positive to this item, in that it would suggest that the participant has a high degree of self-efficacy.

***Consider yourself optimistic.*** The theory of self-efficacy also implies that individuals who are optimistic possess self-efficacy. In the event that this item is answered in the affirmative, this participant will be considered to have some degree of self-efficacy. This consideration will be stronger if the previous item is also answered in the affirmative.

***Recover quickly from failure.*** Individuals who are able to recover quickly in the event of some type of failure are also thought to have self-efficacy. If this item is answered in the affirmative, the participant will be considered to have self-efficacy.

### **Adult Learning Theory**

The following items have been created to determine whether or not participants have the characteristics described in the adult learning theory. Identifying individuals who have these characteristics is necessary to make determinations as to whether or not these individuals fit into the category of “adult learner.”

***Motivated by intrinsic factors.*** These motivating factors, such as improved self-image, increased duties, and reaching goals are noted in adult learners. If participants respond in the affirmative on this item, it will reveal that they are motivated by motivational factors seen in adult learners. This theory provides the framework for the school of nursing noted in this study. Therefore, this item will be particularly useful for this study.

***Self-directed.*** Being self-directed is a vital tool for students to obtain successful outcomes. This item was included in the section that was based on the adult learning theory because this theory suggests that adult learners are self-directed.

***Utilize what is learned.*** Adult learners need to be able to apply new knowledge in a problem-solving manner. Presenting an item which determines if the participant has this need is also useful in making a determination as to whether or not the participant is an adult learner, as defined by the adult learning theory.

### **Theory of Achievement Motivation**

The determination of whether or not participants possess tendencies defined in the theory of achievement motivation will determine whether or not they will be motivated to engage in, and successfully complete achievement-oriented tasks. The completion of a nursing program can be considered to be an achievement-oriented task. Therefore, this



determination will be useful in this study, as student engagement and motivation are necessary to achieve positive student outcomes in nursing programs, and in the nursing profession.

***Compelled to complete.*** High attrition rates in colleges has long been a concern, particularly in nursing schools where every seat needs to be filled with a student who will ultimately enter into the nursing profession. Therefore, it is necessary to determine if these participants possess a strong desire to finish what they start, which is a component of the theory of achievement motivation.

***Capable of achieving.*** Another important component of the theory of achievement motivation is for an individual to have the belief that he/she is capable of achieving what he/she sets out to accomplish. Students in nursing programs need to have this belief due to the rigor, demands, and intensity of the program.

## **Literature Review**

The literature review presented in this study discussed studies that offered information regarding the best predictors of academic success. Since predicting student success is important for maximizing the limited seats available in nursing programs, and for helping to alleviate the nursing shortage, items were constructed that related to studies found in the literature review.

***Leadership qualities.*** Not only is there a nursing shortage, but there is also a shortage of leaders in nursing (Thrasher, 2012). Determining whether or not participants self-report possessing leadership qualities is necessary for this study. Ultimately, the selection of applicants for nursing programs may need to include those who have this useful ability.

***GPA over 3.0.*** Studies have suggested that students who have a GPA over 3.0 have more positive student outcomes than those who do not (Ortega et al., 2013; Schripsema et al., 2014). Therefore, an item which can determine if a participant's GPA was over 3.0 was necessary to add into the survey for this study, which is concerned with student outcomes.

***Resiliency.*** One study noted in the literature review suggested that resilience may foster academic success in nursing students (Beauvais et al., 2013). Additionally, Bandura (1994) notes that when others tell individuals that they have the capability of conquering daunting tasks, these individuals tend to become more resilient when difficulties arise. It is for these reasons that an item regarding resiliency needed to be a part of the survey for this study.

***Team awareness.*** Nursing is the type of profession where it is not enough to focus upon your own workload, instead nurses need to be aware of their coworkers' assignments as well. Hubbard (2015) was interested in examining team awareness, which is a quality that is necessary in nursing. Therefore, having an item which addressed the characteristic of team awareness was an important item for this study.

***Admit to mistakes.*** Nursing is one of the few professions whereby one will not be penalized for making an error. However, a nurse will be strongly penalized for any type of a cover-up of an error. This practice requires an individual to possess a strong sense of integrity. Hubbard (2015) was also interested in examining integrity and empathy, which are also important qualities for nurses to possess.

***Prior healthcare experience.*** Similar to having prior nursing experience, having prior work experience in healthcare, such as being an army medic or respiratory therapist,

may also lead to positive student outcomes (Foley & Hihazi, 2013). Therefore, an item which identifies prior healthcare work experience was necessary for this study.

***Transfer credits.*** One study suggested that students who have course credits that can be transferred into a program have greater academic success than those who do not (Simon, McGinnis, & Krauss, 2013). This may be true because students who have already experienced higher education, likely developed the skills necessary to succeed academically. Therefore, this item was necessary to include in this study.

***Repeat prerequisites.*** One study suggested that when a student has a history of repeating prerequisite courses, the student was less likely to pass the NCLEX-RN (Trofino, 2013). Since passing the NCLEX-RN is a necessary step in the process of entering into the nursing profession, this item needed to be included in this study.

***ACT score.*** Another study suggested that the best predictor of retention and NCLEX-RN success was preprogram GPA and ACT scores (Elkins, 2015). Therefore, it was necessary to include an item that involved participants' ACT scores in the survey as well.

***Spiritual well-being.*** One study noted in the literature review suggested that academic success was correlated with spiritual well-being (Beauvis et al., 2013). It is for this reason that an item was included that sought to determine a participant's sense of spiritual well-being.

### **Demographic Questions**

The survey items used in the demographic section seek to garner information that is useful for this study, not simply to describe the participants.

***New York State RN license.*** One of the goals of this study is to create a profile of an individual who successfully entered into the profession of nursing. Therefore, an item which identifies whether or not the participants earned a license needed to be included.

***Passing the NCLEX-RN on the first attempt.*** Schools of nursing jeopardize their accreditation when students are unsuccessful in passing the NCLEX-RN on the first attempt (Serembus, 2016). Therefore, an item which asked about passing on the first attempt needed to be included in the survey.

***Working in the nursing profession.*** One possible finding for this study is that individuals who have experience either as a certified nursing assistant (CNA) or licensed practical nurse (LPN) have a greater chance for successfully entering into the nursing profession due to their prior knowledge of the job. This item will help make that determination.

***Associate degree nursing program graduate.*** The aim of this study is to create a profile of an individual who, among other abilities, has the ability to successfully complete the coursework required to graduate from an associate degree program. Therefore, an item that revealed if the participant actually graduated from the program needed to be included.

***Full-time or part-time.*** There are options for students to enter into the nursing program. In general, the evening, or part-time program, runs for six semesters. This program is geared towards the working professional, and the content is delivered at a slower pace. Conversely, the day, or full-time program, is an intense, fast-paced, four-semester program. In this program students are advised to focus solely on their studies and work as few hours per week as possible to keep up with the demands of the program. In

order to reveal which cohorts, day or evening, are more likely to enter into the nursing profession needed to be included.

### **Ethical Considerations and Approvals**

In the event that I had accessibility to participants' names, I would have known if I had been their instructor while they were enrolled in the program. This information may have impacted the results, if I had preconceived ideas regarding the reasons why the participant did/did not successfully enter the nursing profession. Therefore, the surveys were returned anonymously, and this possibility was avoided.

Another potential bias would have been that the participants who were unsuccessful on the NCLEX-RN may have been displeased with the nursing program and provided information intentionally to skew the results of the study. Therefore, the participants who did not graduate from the program were not included in the study.

### **Potential Impact on Human Subjects and Protection of Human Subjects**

Due to the nature of the research design, the participants were anonymous, competent, adults. The nature of the survey items was not emotionally charged, rather they were simple, fact-related, general "yes" or "no" items related to the participants' professional and educational backgrounds, perceptions, and experiences. Therefore, the risk was no greater than what a participant would encounter in everyday life.

### **Limitations and Benefits**

Every research study is likely to present with certain unavoidable methodological limitations, as well as benefits and contributions. The identification of methodological limitations is an important part of the procedures in quantitative research. Once

limitations are identified, they can be addressed appropriately, even if it is only to be aware that they exist.

Additionally, a discussion of the benefits and contributions of a study is also a necessary part of the research process in that it explains the usefulness of the results that can be used by others seeking solutions to similar challenges, perhaps even in other disciplines.

### **Methodological Limitations**

Use of LCA produced a number of categorical classes. The latent classes of groups of individuals who successfully entered into the nursing profession were presented in this study. This study was suggestive, but not generalizable, due to the convenience sample, since it remains unknown how representative these groups are in other geographic areas.

Another limitation of the study involved the generalizability of the student population that attends this community college, in that the enrollment of students of color is 36%, compared with the New York State average of 52% (Community College Review, 2017).

### **Benefits and Contributions of the Study**

Through a novel approach and statistical analysis, a profile of an individual who will have the ability to gain admissions into nursing programs, successfully complete the coursework, pass the NCLEX-RN, and then become gainfully employed in the nursing profession was created. As a result of the development of this profile, admissions officers are able to compare applicants to this profile. This comparison will provide

admissions officers with the ability to predict, with statistically significant accuracy, which applicants will be most successful once enrolled into the program.

Not only is this profile going to benefit admissions officers, it will also be beneficial to the applicants. The applicants who fit the profile benefit in that they may be selected before applicants who do not fit the profile. In addition, applicants who do not fit the profile also benefit in that they may be redirected into a different course of study which better suits their abilities, thereby saving these applicants time and tuition fees in a fruitless endeavor. Or applicants who do not fit the profile and still wish to pursue nursing, can be offered the support needed to become successful.

Another benefit of this study is that the information provided may be useful in terms of targeted recruitment into nursing programs. The practice of targeted recruitment into nursing programs may help in locating applicants (previously unidentified) who are likely to enter into the nursing profession. For example, if this study suggests that veterans who enter into nursing programs are most likely to enter into the nursing profession, nursing schools can actively recruit veterans into their programs. Potentially, the practice of targeted recruitment using the information provided in this study may alleviate attrition rates and other issues pertaining to the nursing shortage.

The results of this study may be useful for admissions officers in other disciplines as well. Similarly, this study may also assist other disciplines in creating an effective process for targeted recruitment into those particular programs. In other disciplines, as well as nursing, filling limited program seats with students who are most likely to succeed is just as important for the programs, as it is for the students they admit.

### **Interdisciplinary Nature and Benefits of Proposed Research**

An overlap of constructs can be noted in research across disciplines, and can be seen in this study as well. The nursing profession benefits by borrowing and applying research and theories from other disciplines. These disciplines include education and the behavioral sciences, and can be seen in the literature review and theoretical framework in this study. A discussion of the interdisciplinary nature and benefits of the proposed research is presented in this section.

### **Interdisciplinary Nature**

A thorough literature review was conducted. Yet, few studies were found that related to the admissions criteria used specifically in associate degree nursing programs. However, several studies were located which involved the admissions criteria used for programs in other healthcare disciplines, including: nurse anesthetist school, medical school, physician assistant school, and dental school. These other disciplines face challenges similar to nursing involving admissions processes and predicting positive student outcomes. Therefore, these studies were presented in the literature review in this study.

Additionally, this research involves the admissions process into an associate degree nursing program. However, the theoretical framework that was employed was not limited to nursing. Rather, the theories used for this study (the triarchic theory of successful intelligence, the adult learning theory, the theory of self-efficacy, and theory of achievement motivation) are taken from cognitive, psychological, and social disciplines. These theories are relevant to the admissions process into nursing programs in that they are all relatable to characteristics and abilities needed for students to succeed in nursing.



Possessing qualities such as motivation, self-efficacy, and being able to capitalize on strengths and compensate for weaknesses, as well as being an adult learner are all important attributes and characteristics needed for positive student outcomes in nursing. Yet, the theories that relate to these attributes and characteristics stem from other disciplines. Nursing can benefit from borrowing and applying theories from other disciplines.

A multifaceted survey, which looked through various interdisciplinary lenses, was created based upon the interdisciplinary literature review and theoretical framework. This survey was used to elicit rich and meaningful data that were analyzed, and hopefully provided useful information regarding this topic. Due to the interdisciplinary nature of this proposed study, the results may be useful to other disciplines, as well as to the profession of nursing.

### **Benefits of Proposed Research**

This study fills a gap in research involving the associate degree nursing program admissions process. For unknown reasons, this is a topic that has not been widely examined. This study may also make a contribution in the improvement of the existing nursing program admissions process, which arguably lacks effectiveness. Now more than ever in history, it is important to select applicants who are most likely to enter into the nursing profession. The aim of this study was to improve the effectiveness of the admissions process into associate degree nursing programs, thereby alleviating the nursing shortage.

### **Chapter Summary**

In this chapter, I have presented a novel, innovative, and interdisciplinary approach to study the admissions process into associate degree nursing programs. This approach helped examine how applicants can be assessed in terms of their potential to enter into the nursing profession, prior to their acceptance into the program. This method may offer a new perspective for admissions officers in schools of nursing striving to increase the number of their applicants who ultimately enter into the nursing profession.

In the next chapter, I present the results of the survey and LCA. I provided information on each survey item, and I focused upon the characteristics of the latent classes that were revealed in this study. I also presented a profile of a nursing school applicant who is likely to ultimately enter into the profession of nursing.

## CHAPTER IV

## RESULTS

This chapter reports the results of the study, and responds to the research questions, which guided the study:

RQ 1: Which admissions criteria best predict that New York State Associate Degree Nursing (ADN) program applicants will enter into the nursing profession?

RQ 2: What is the likelihood of individuals entering into the nursing profession, who are veterans (a person who served in the active military, naval, or air service, and was discharged or released under conditions other than dishonorable), have earned prior degrees, and/or have prior healthcare experience?

RQ 3: Which noncognitive traits need to be examined during the admissions process to help identify applicants who are likely to succeed in an associate degree nursing program?

The first research question was addressed by the results of the anonymous, voluntary, online survey. Each item is presented separately. Then the results of the confirmatory factor analysis, which was used to assist in determining which survey questions did not significantly relate to their latent categories, to exclude these items from the subsequent LCA test are presented. Next, the 2, 3, and 4-class LCA verification output on the survey split samples that was used to help determine appropriate class selection for the final LCA is shown. This is followed by the final LCA describing the class profiles of individuals who would ultimately enter into the nursing profession. The last item of the survey provided a qualitative component to the study, and asked the

participants why they wished to become a nurse. Their responses are presented, and address the first research question.

The second research question was addressed by analyzing the survey items which specifically collected data relating to veteran status, prior degrees earned, and prior healthcare experience. It must be noted that during the course of conducting this study, it was revealed that the veteran educational benefits do not align with the structure of the ADN program used for this study. Therefore, due to this new information, the second research question was not fully answerable in this study.

The third research question was addressed by analyzing the survey items which specifically involved noncognitive traits, such as self-reported leadership ability. Once these items were analyzed, methods of incorporating the identification of these traits on admissions was discussed.

Next, the BIC and ABIC used to compare the relative fit of the models were presented. The AIC estimates which describe the quality of each model for a given set of data were presented as well. An examination of class homogeneity and separation was presented next.

### **Confirmatory Factor Analysis**

A CFA was performed, arranging survey questions into their latent categories: successful intelligence, self-efficacy, adult learning, achievement motivation, literature review, and demographic information. CFA output revealed that Items 3 and 21 were the only survey questions that did not significantly relate to their latent categories (see Table 4.1). Therefore, these questions were excluded from the subsequent LCA test.

The  $\beta$  factor loading worked like a regression coefficient. It means that for every one SD unit increase in the latent factor (adult intelligence, intrinsic motivation, etc.) there will be  $\beta$  increase or decrease in the indicator. Many indicators increase positively with their associated latent factor, which is expected. However, in some measurements (like successful intelligence) we see that some indicators increase with the latent factor while others decrease. This is indicative of lack of fit within that factor.

The questions within Self Efficacy and Achievement Motivation classes, in particular, had large SE values relative to their estimate  $\beta$  values, meaning the estimate values themselves are relatively unreliable. This is supported by the higher p-values of the survey questions within these classes. Applied here, the SE varies throughout each indicator in the CFA.

The z-value is the  $\beta$  estimate over the SE. This is used to determine the p-value to see how reliably each indicator increases or decreases as the latent variable changes. Since most p-values are zero, most of the indicators are reliably associated with their latent variable. Some of the reliability increased along with the latent variable, while others reliability decreased.

Table 4.1

*Confirmatory Factor Analysis Results*

Latent Factor	Indicator	B	SE	Z	p-value
Successful Intelligence	q1	0.954	0.066	14.345	0
	q14	0.955	0.069	13.864	0
	q9	0.679	0.069	9.903	0
	q7	-0.609	0.06	-10.229	0
	q2	-0.389	0.037	-10.44	0
	q8	-0.518	0.054	-9.575	0
	q3	0.016	0.029	0.544	0.586
	q10	0.112	0.031	3.573	0

Self-Efficacy	q4	0.806	0.081	9.947	0
	q11	0.71	0.071	9.979	0
	q15	0.662	0.071	9.259	0
Adult Learning	q16	0.402	0.18	2.24	0.025
	q17	0.371	0.174	2.135	0.033
	q13	0.331	0.14	2.362	0.018
Achievement Motivation	q5	0.276	0.093	2.976	0.003
	q18	0.475	0.175	2.719	0.007
Literature Review	q21	-0.035	0.037	-0.955	0.34

The eigenvalues for each factor in the model (Successful Intelligence, Self-Efficacy, Adult Learning and Achievement Motivation) are 5.52, 0.52, -0.23 and -1.81, respectively (see Table 4.2). The negative eigenvalues indicate that model grouping of the survey questions by the factors was weak, and was not supported by the covariance matrix. In other words, the null hypothesis that the survey questions could not be grouped by the pre-identified factors is confirmed. It is appropriate, then, for the primary grouping analysis in this project to be performed by the LCA. The only pre-identified latent factor in the CFA with a considerable eigenvalue was Successful Intelligence, with an eigenvalue of 5.52. This means the latent Successful Intelligence factor explains over five times the dataset variability than each survey question within the factor could explain on its own.

However, it should be noted that the parameter estimate value  $\beta$  for survey questions within Successful Intelligence varied greatly, from 0.954 to -0.61. This indicates a lack of fit among the survey questions to the latent factor. One standardized unit increase in Successful Intelligence resulted in an increased association with certain

survey questions (i.e. q1, q14, q9) within the factor but decreased association with others (i.e. q2, q7, q8). Item 3 was the only survey question within Successful Intelligence that appeared to have no relation with that latent class, displaying both a low  $\beta$  estimate and a high p-value. All  $\beta$  estimates within this latent factor had low relative SEs, indicating a high degree of confidence in the parameter values. The three remaining latent factors (Self Efficacy, Adult Learning and Achievement Motivation) had considerably smaller eigenvalues: 0.52, -0.23 and -1.81, respectively. The negative eigenvalues in particular are indicative of the poor performance of the CFA as a whole. CFA is most commonly used on datasets with continuous variables; the CFA analysis runs the risk of creating positive definite covariance matrices for determining eigenvalues when using datasets with binary variables, which is what happened in this case. Such a result suggests the use of an alternative method of latent classification for this dataset, which was done successfully with LCA. Nevertheless, the low and negative eigenvalue output for the Self Efficacy, Adult Learning and Achievement Motivation latent classes indicate that these latent classes do not do a better job explaining dataset variance than the individual survey questions classified within them alone.

Table 4.2

*Eigenvalues for Each Factor in the Model*

Factor	Eigenvalue
Successful Intelligence	5.52
Self-Efficacy	0.52
Adult Learning	-0.23
Achievement Motivation	-1.81

### RESULTS OF PHASE 1: Analysis of Individual Item Responses

The confidential, anonymous, online surveys were emailed to the potential participants through SurveyMonkey. The participants were asked 32 yes/no questions that were based upon the available literature as well as the theoretical framework used for this study. The results of the survey items are presented below.

**Responses to Item 1: “Do you consider yourself to have good judgment?”** Not surprisingly, 99.58% ( $n = 239$ ) of the respondents self-reported as having good judgment and only 0.42% ( $n = 1$ ) did not. Two respondents skipped the question (see Figure 4.1).

Considering the ever-evolving role of the nurse, and the increasing demands placed upon nurses, having good judgment is likely the single most important characteristic needed to be successful in this profession. Having good judgment is necessary to be able to think critically through challenges and make accurate split-second decisions, which lead to positive patient outcomes.

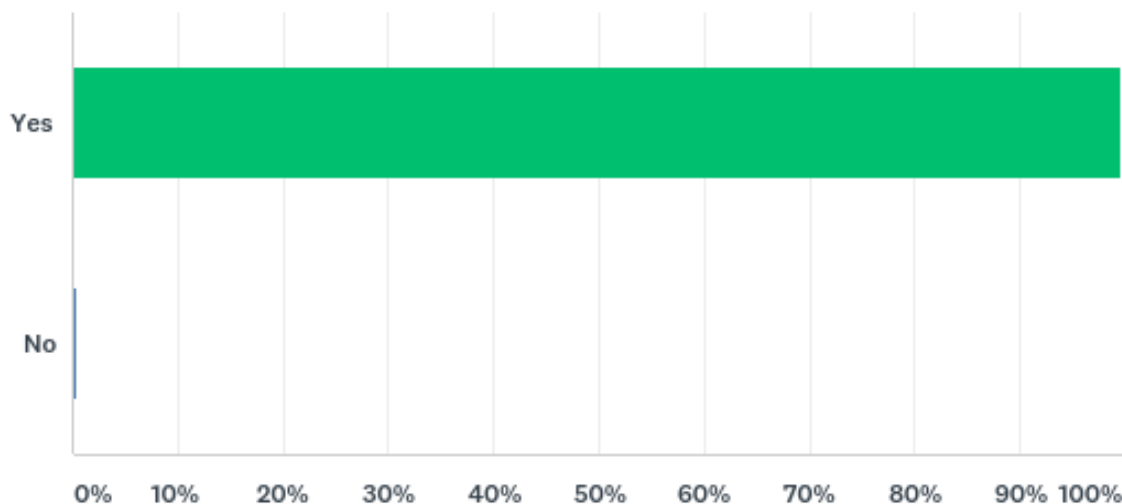


Figure 4.1. Bar chart of responses to Item 1.



**Reponses to Item 2: Are you bilingual?** Only 17.92% (n = 43) of the respondents self-reported being bilingual, and 82.08 (n = 197) did not. Two respondents skipped the question (see Figure 4.2).

Having the ability to speak a second language is a useful skill to possess as a nurse. Initially, it appeared that not being bilingual would not prevent a student from entering into the nursing profession. However, during my investigation into this item response, I met with an English as a Second Language (ESL) professor from this college. I discovered that it is not possible for many ESL students to succeed on the TEAS examination, therefore, these students are unable to gain admission into the nursing program. This is another example of why the current use of a TEAS examination is not the best admissions criteria for all students, and other criteria need to be identified.

It should be noted that, in general, bilingual new graduate nurses are likely to be hired before English-only speaking new graduate nurses, depending on the diversity of the area where they will be employed. Moreover, one study found that bilingual registered nurses received wage premiums of almost seven percent. Therefore, there is a financial benefit for bilingual nurses (Kalist, 2005). The benefit to non-English speaking patients also needs to be addressed. Patients are better served when cared for by nurses who are fluent in the language patients are most comfortable speaking.

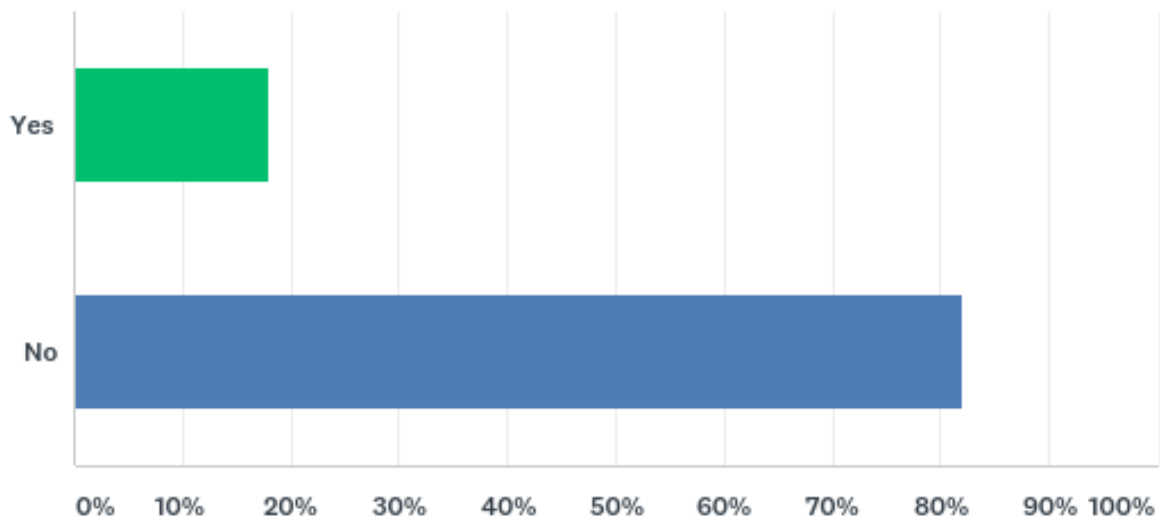


Figure 4.2. Bar chart of responses to Item 2.

**Responses to Item 3: Had you earned any other degrees prior to going into the nursing program?** This item had nearly a 50-50 split; 52.92% ( $n = 127$ ) reported that they had a prior degree, and 47.08 ( $n = 113$ ) reported that they did not. Two respondents skipped the item (see Figure 4.3).

These responses suggested that it did not appear to matter whether or not an applicant had earned a prior degree in order to successfully enter into the nursing profession. The responses for this item came as a surprise in that one may think that having experience in higher education would play a role in the success of a nursing student, however, based on this finding, it appears that having earned a prior degree is inconsequential for nursing students to achieve positive outcomes.

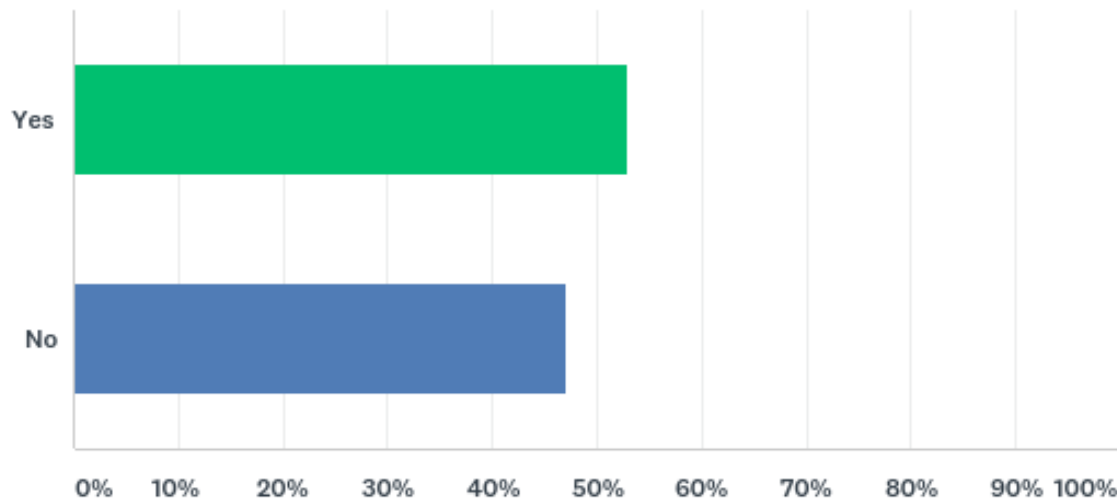


Figure 4.3. Bar chart of responses to Item 3.

**Responses to Item 4: Do you seek out challenges?** For this item, 92.50% ( $n = 222$ ) of respondents self-reported that they did seek out challenges, and 7.50% ( $n = 18$ ) self-reported that they did not. Two respondents skipped the item (see Figure 4.4).

Nursing is certainly challenging. It would make sense that a large majority of individuals who successfully entered into the nursing profession were the type of people who readily seek out challenges. Therefore, the responses for this item are not surprising.

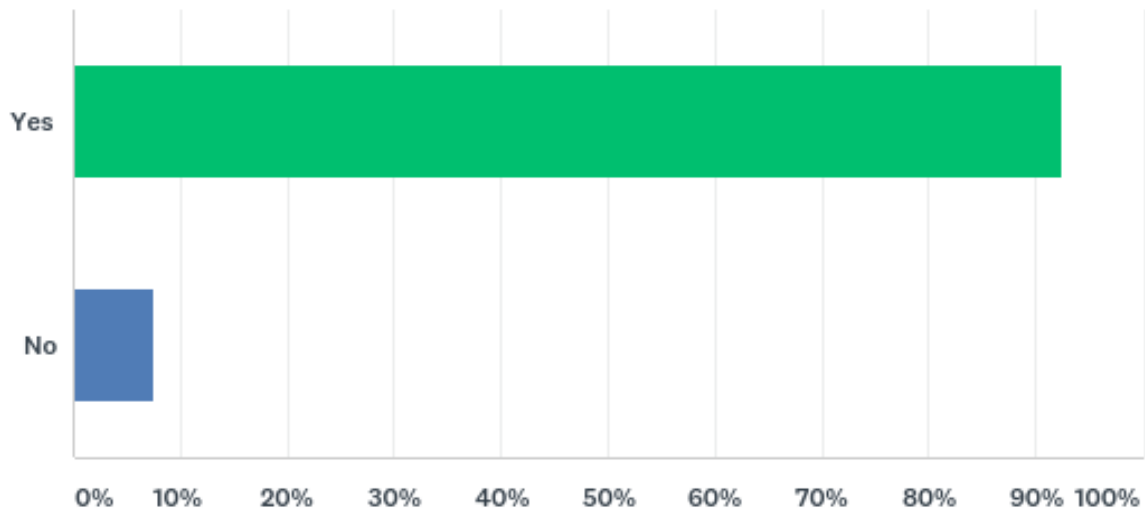


Figure 4.4. Bar chart of responses to Item 4.

**Responses to Item 5: Do you believe you are capable of achieving anything?**

Here, 89.96% ( $n = 215$ ) of respondents answered “yes” to this item, and 10.04% ( $n = 24$ ) responded “no.” Three respondents skipped the item (see Figure 4.5).

As per the theory of achievement motivation, determining whether individuals possess a belief that they are capable of achieving anything will determine whether or not they will be motivated to engage in, and successfully complete achievement-oriented tasks (Atkinson, 1964). Therefore, this is an important finding in terms of building a profile of an individual who will be ultimately able to enter into the nursing profession.

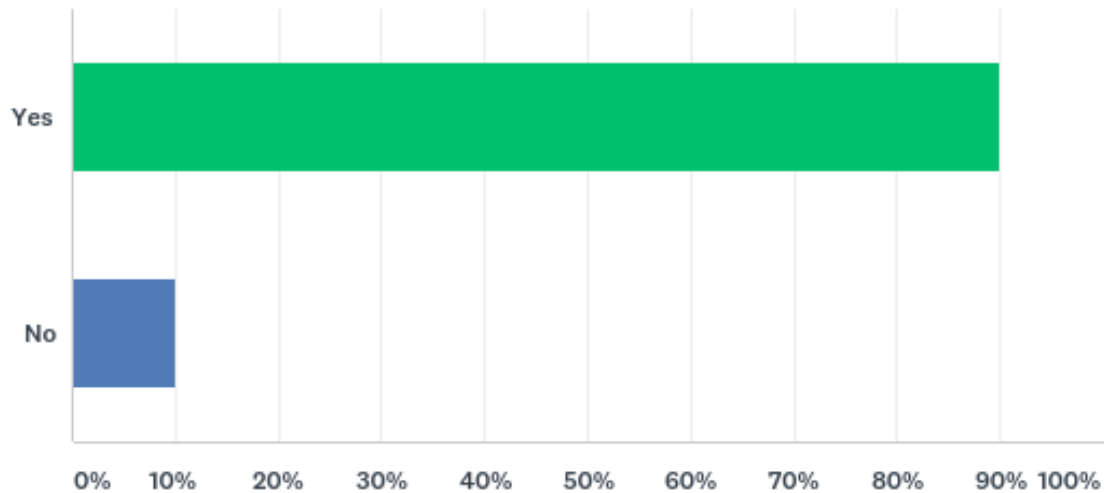


Figure 4.5. Bar chart of responses to Item 5.

**Reponses to Item 6: Was your GPA over 3.0 when you were admitted into the nursing program?** For this item 93.33% ( $n = 224$ ) of respondents answered “yes,” and 6.67% ( $n = 16$ ) answered “no.” Two respondents skipped the item (see Figure 4.6).

Although almost one-half of respondents self-reported that they had not earned a prior degree in the previous item, this item revealed that they had at least taken other higher education courses. Evidently, in those courses respondents earned a GPA of over 3.0.

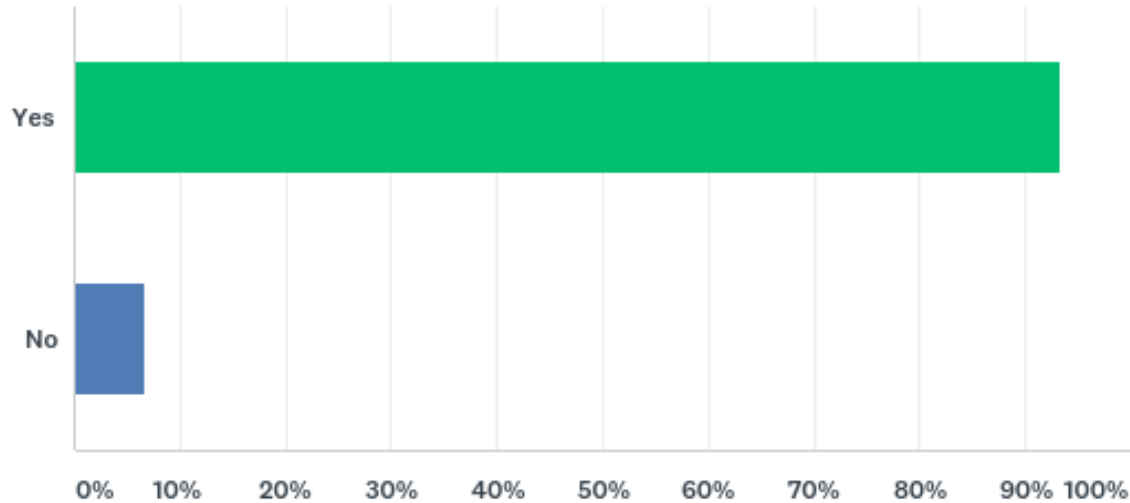


Figure 4.6. Bar chart of responses to Item 6.

**Responses to Item 7: Were you a veteran when you applied to the nursing program?** Only 3.33 (n = 8) of respondents answered “yes” to this item, and 96.76 (n = 232) answered “no.” Two respondents skipped the item (see Figure 4.7).

It must be noted that during the study, it was determined through a meeting with the veteran coordinator at the college, that veteran benefits do not align with associate degree nursing programs. The veteran benefits do align with BSN programs and that would account for this response rate. The literature review revealed that veterans do well in nursing programs, although it would not appear so based on the responses to this item. Therefore, this item did not yield information that should be used in the creation of a profile of an individual who is able to ultimately enter into the nursing profession.

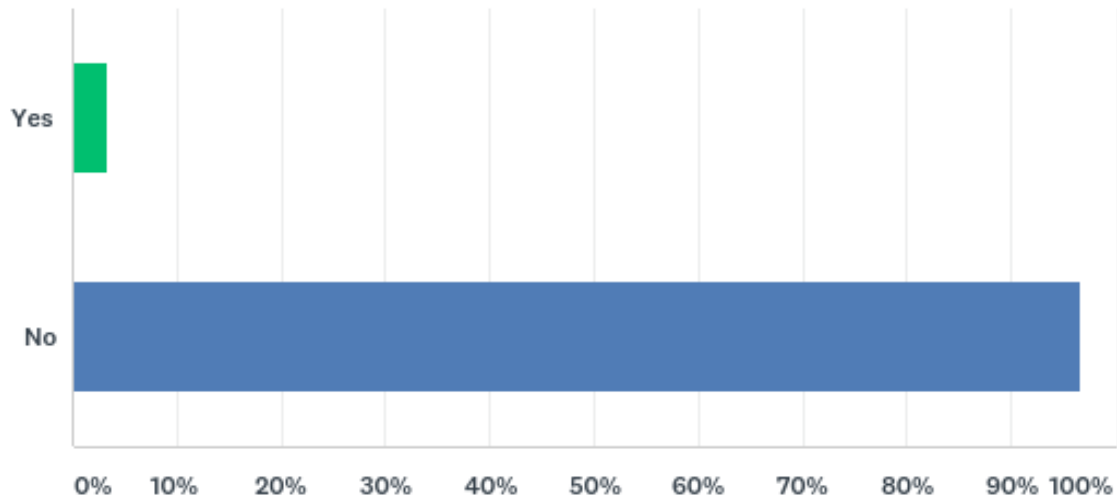


Figure 4.7. Bar chart of responses to Item 7.

**Responses to Item 8: Are you multilingual?** Only 7.11% ( $n = 17$ ) of respondents answered “yes” to this item, and 92.76 ( $n = 222$ ) answered “no.” Three respondents skipped the item (see Figure 4.8).

Similar to Item 2, which asked if the respondents were bilingual, the vast majority of respondents did not possess the skill of being multilingual. Although being multilingual is a valuable skill, as noted above for bilinguals, it is not a skill that can be used to determine whether or not an individual can successfully enter into the nursing profession.

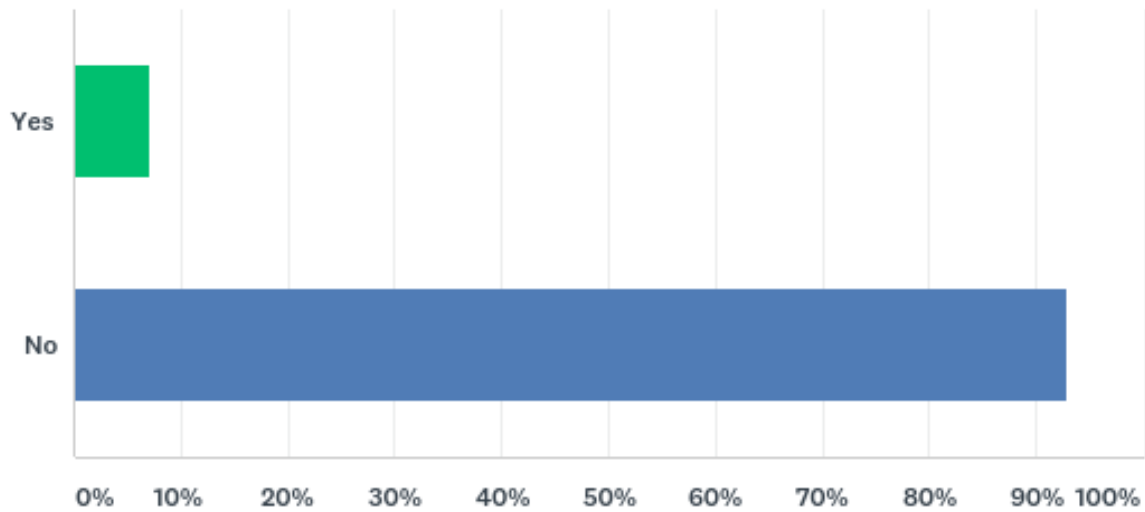


Figure 4.8. Bar chart of responses to Item 8.

**Responses to Item 9: Do you consider yourself to be professional?** A large majority, 98.76% ( $n = 238$ ) answered “yes” to this item, and 1.24% ( $n = 3$ ) answered “no.” One respondents skipped the item (see Figure 4.9).

The title used in the nursing profession is “Registered Professional Nurse.” Therefore, the findings for this item were not surprising except that two percent of respondents did not feel that they were professional. It was unexpected that *any* respondent, who is a Registered Professional Nurse, would answer in the negative for this item.



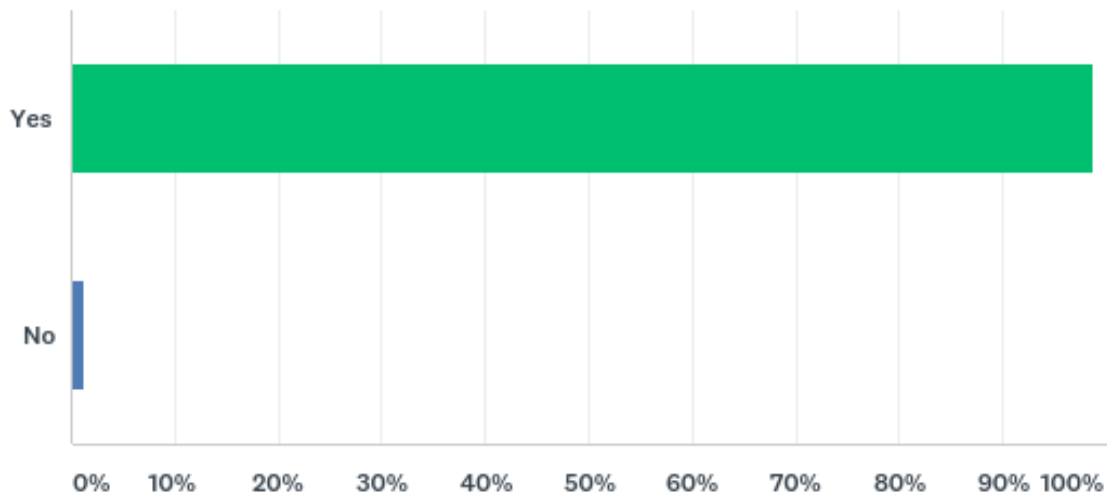
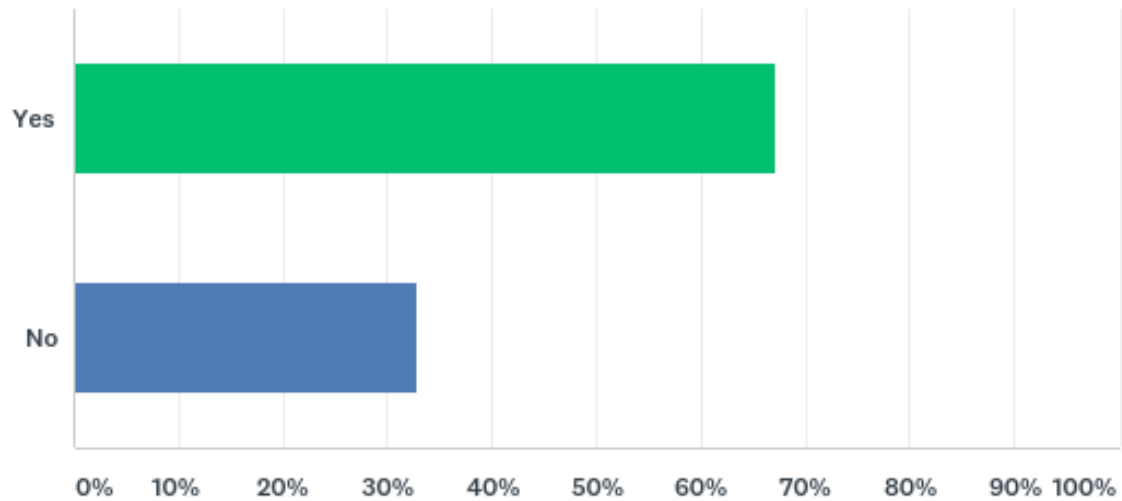


Figure 4.9. Bar chart of responses to Item 9.

**Reponses to Item 10: Have you had other careers before going into nursing?**

For this item, 67.22% ( $n = 162$ ) of the respondents had other careers before going into nursing, and 32.78 ( $n = 70$ ) did not. One respondent skipped the item (see Figure 4.10).

More than half of the individuals who successfully entered into the nursing profession had some type of work experience prior to going into nursing. Presumably, having had any type of career experience would be useful for nurses as they adjust to the demands of their new career.



*Figure 4.10.* Bar chart of responses to Item 10.

**Reponses to Item 11: Do you consider yourself to be an optimist?** Of the respondents, 88.80% ( $n = 214$ ) self-reported being optimistic, and 11.20% ( $n = 27$ ) did not. One respondent skipped the item (see Figure 4.11).

As per the theory of self-efficacy, a positive mood increases self-efficacy, and a hopeless mood decreases it (Bandura, 1994). Therefore, this item revealed that an important trait in becoming a nurse is being optimistic.

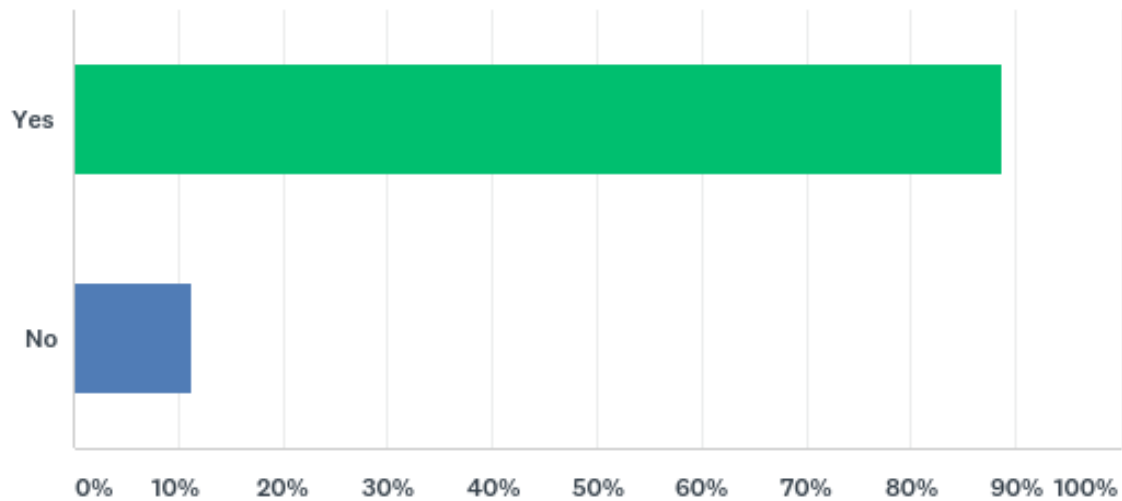


Figure 4.11. Bar chart of responses to Item 11.

**Responses to Item 12: Was your ACT score over 20?** Twenty respondents skipped this item. Of those who answered the item, the majority, 63.51% ( $n = 141$ ), self-reported that their ACT score was over 20, and 36.49% ( $n = 81$ ) self-reported that their ACT score was not over 20. It is my belief that many respondents either never sat for the ACT, or did not recall their score as it occurred while they were in high-school which may have been many years ago (see Figure 4.12).

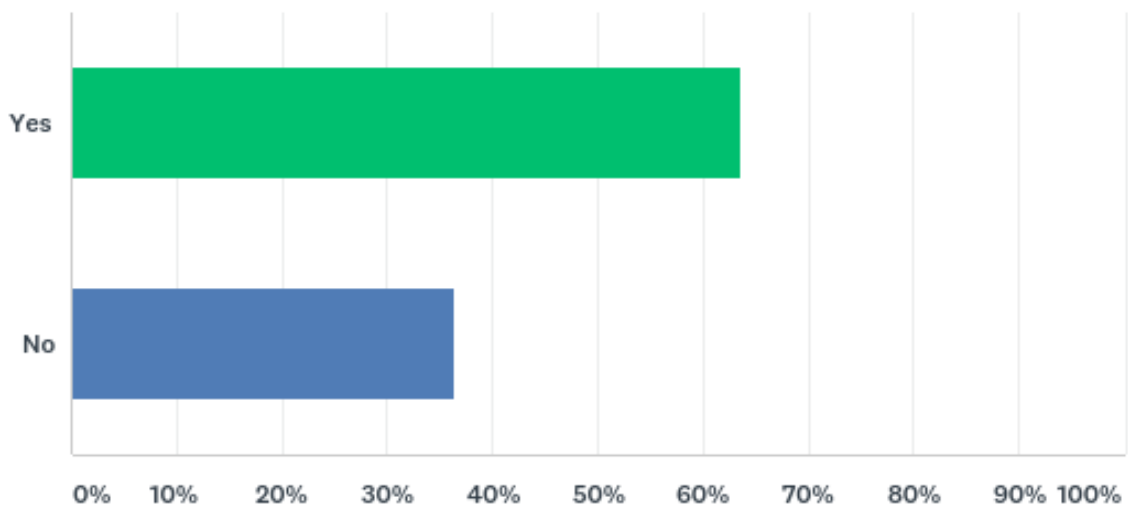
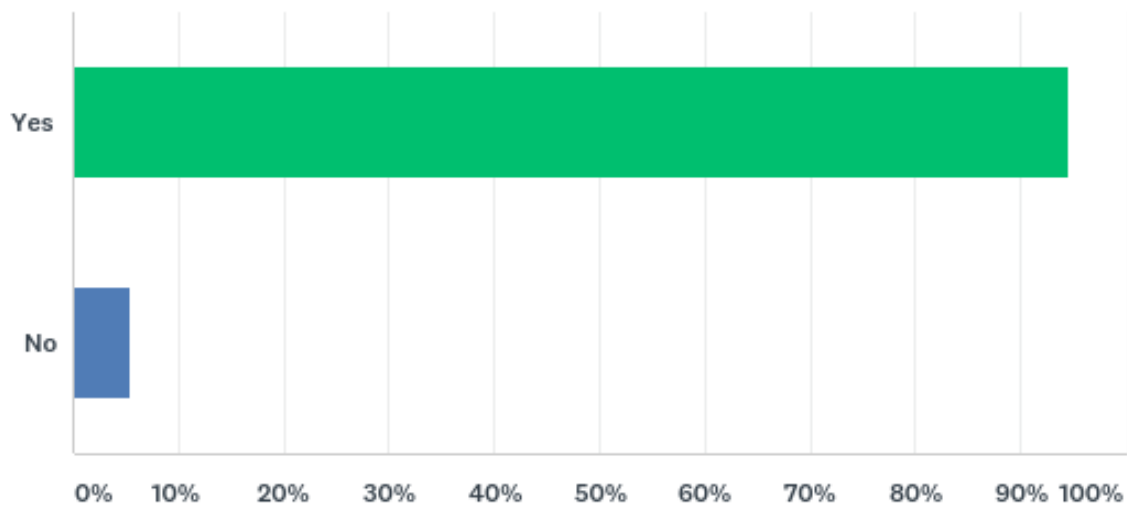


Figure 4.12. Bar chart of responses to Item 12.

**Reponses to Item 13: Do you feel a need to utilize what you learn?** Of the respondents 94.61% (n = 228) answered “yes” to this item, and 5.39% (n = 13) answered “no.” One respondent skipped the item (see Figure 4.13).

Based on adult learning theory, adult learners have a need to use what they learn, not to learn just for the purpose of gaining information (Knowles, 1996). The responses to this item reinforces that idea.



*Figure 4.13.* Bar chart of responses to Item 13.

**Reponses to Item 14: Do you consider yourself to be ethical in nature?**

Nearly all, 99.59% (n = 240) of respondents self-reported as being ethical in nature, and 0.83% (n = 2) respondents did not. One respondent skipped the item (see Figure 4.14).

These responses were reassuring to see, as nurses are considered by the public to be the most ethical of all professions (Gallup Organization, 2017). It was alarming to see that any respondent would self-report not being ethical, since all respondents are nurses.

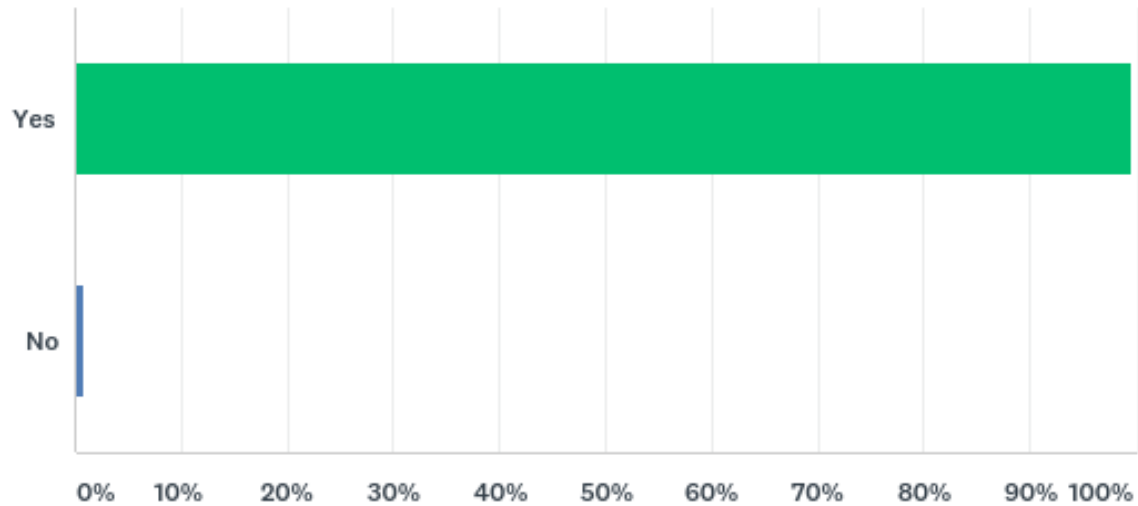


Figure 4.14. Bar chart of responses to Item 14.

**Responses to Item 15: In the event of failure, do you recover quickly?** For this item, 87.50% ( $n = 210$ ) answered “yes” to this survey item, and 12.50% ( $n = 30$ ) answered “no.” Two respondents skipped the item (see Figure 4.15).

Having the ability to recover quickly from a failure is a valuable trait for a nurse in that healthcare is a fast-paced environment that requires nurses to pull through challenging situations and continue to provide excellent care to their assigned patients. Likewise, in nursing school, students cannot dwell on what when wrong with their academic performance. Rather, they need to focus on what they can do to improve upon their future academic performance.

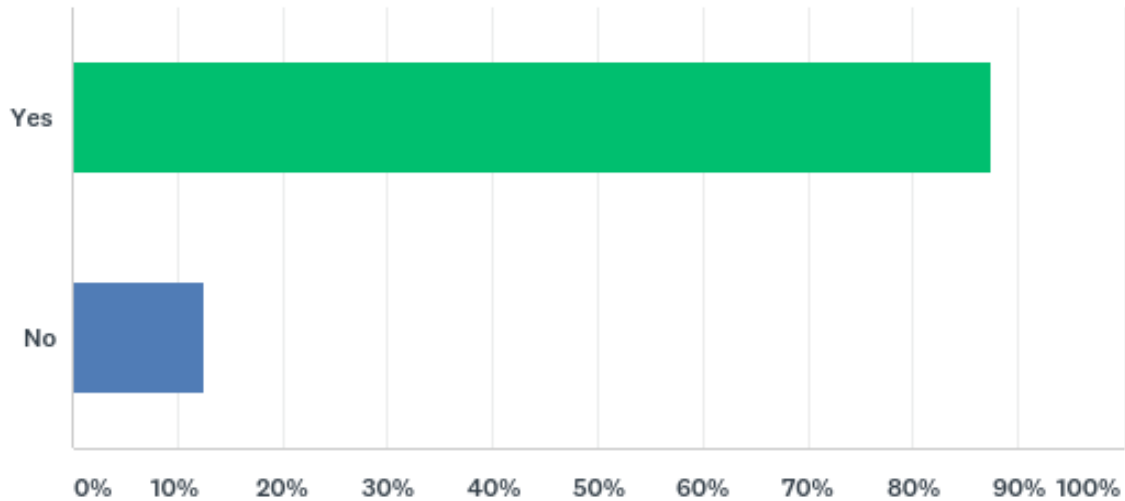


Figure 4.15. Bar chart of responses to Item 15.

**Reponses to Item 16: Are you motivated by intrinsic factors, such as improved self-image, increased duties, and reaching goals?** Almost all, 97.10% (n = 234) self-reported being motivated by intrinsic factors, and 2.90 (n = 7) did not. One respondent skipped the item (see Figure 4.16).

As per adult learner theory, adult learners are more often motivated by intrinsic factors (Knowles, 1996). This item suggested that the theory is accurate in its description of an adult learner as being an individual who is motivated by intrinsic factors.

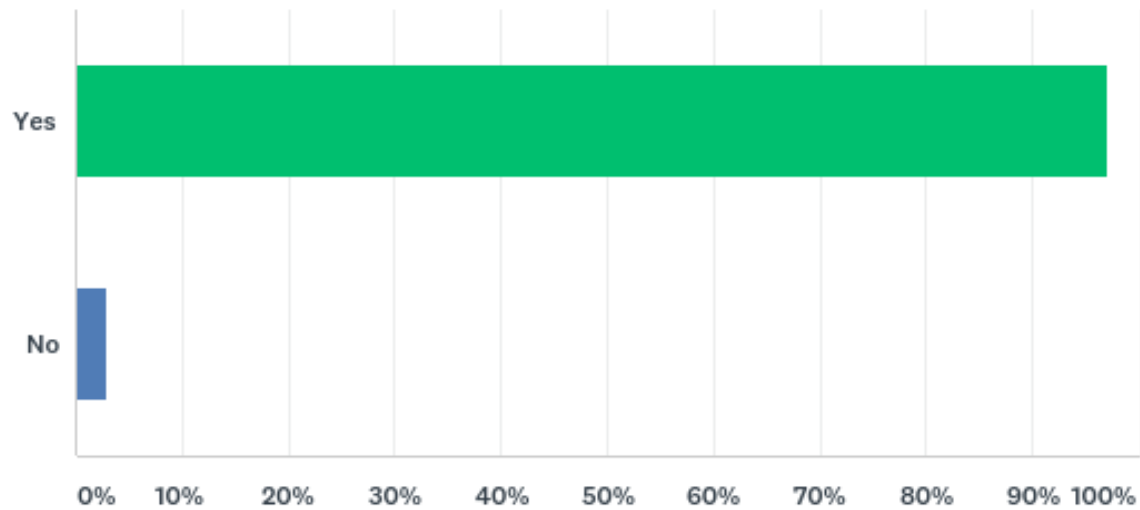


Figure 4.16. Bar chart of responses to Item 16.

**Responses to Item 17: Are you self-directed?** The vast majority, 96.68% ( $n = 233$ ) of the respondents self-reported being self-directed, and 3.32% ( $n = 8$ ) did not. One respondent skipped the item (see Figure 4.17).

Here too, adult learner theory (Knowles, 1996) notes that adult learners are self-directed, and this item reveals that an overwhelming majority of individuals who successfully entered into the nursing profession view themselves as such.

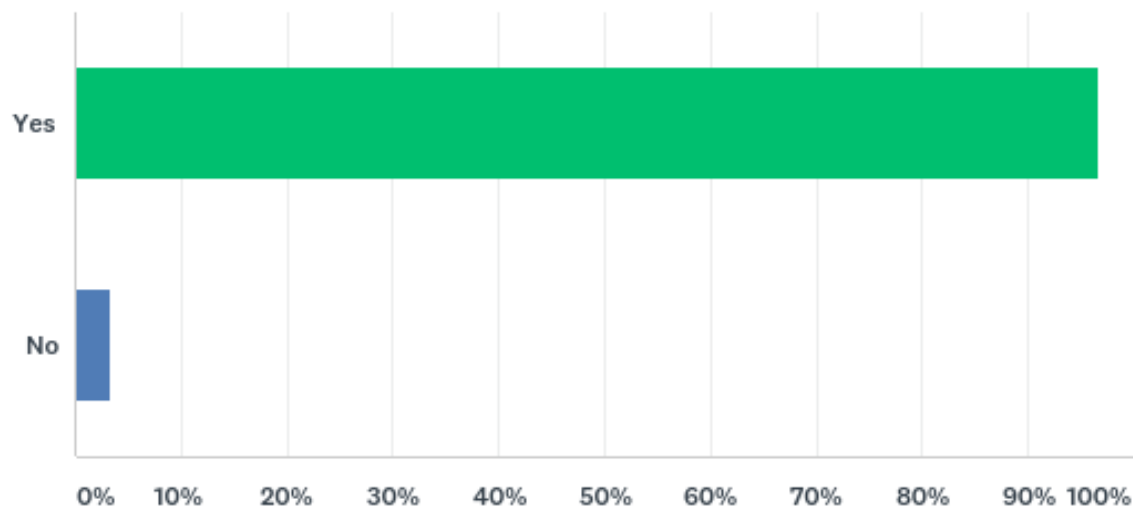


Figure 4.17. Bar chart of responses to Item 17.

**Reponses to Item 18: Do you feel compelled to complete something, once you have started?** An overwhelming majority, 98.34% ( $n = 237$ ) of respondents self-reported as having a need to complete what they start, and 1.66% ( $n = 4$ ) did not. One respondent skipped the item (see Figure 4.18).

Completing what one starts is a valuable quality for nursing students and nurses alike. Nursing students must complete the program before they are qualified to sit for the state licensing boards. Nurses must complete numerous tasks throughout their shift that cannot be left undone. Achievement motivation theory (Atkinson, 1964) suggested that when one engages in an achievement-oriented task, he/she will persist until the task is successfully completed.

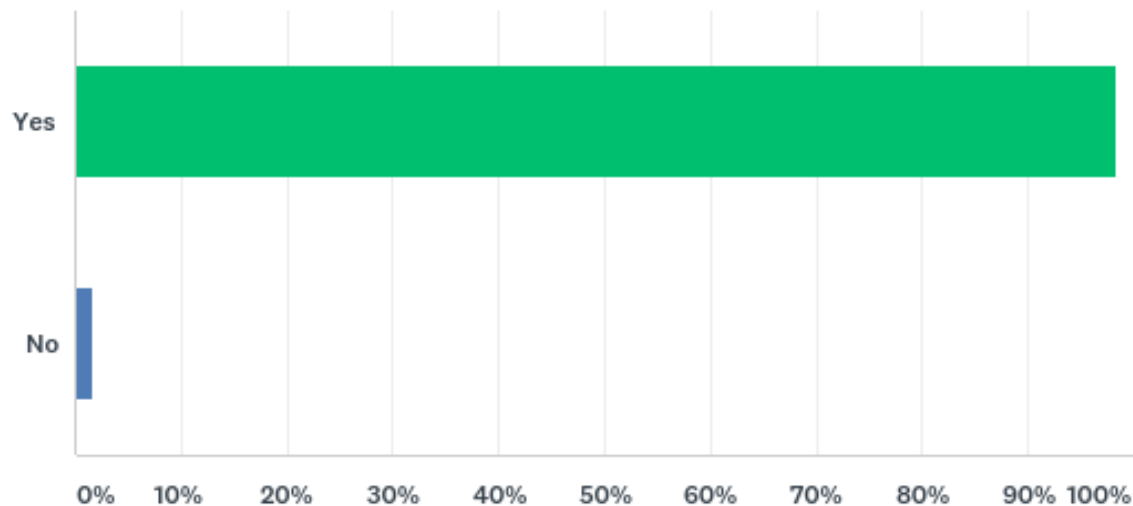


Figure 4.18. Bar chart of responses to Item 18.

**Reponses to Item 19: Are you aware of your coworkers' patient assignments, in addition to your own?** Here, 85.42% ( $n = 205$ ) respondents self-reported that they are aware of their co-workers' assignments in addition to their own, and 14.58% ( $n = 35$ ) did not. Two respondents skipped the item (see Figure 4.19).



Having a sense of team awareness is critical for nurses. This item is one that should be used in the creation of a profile of an individual who will be able to enter into the nursing profession. Nursing is a team-oriented profession and having a sense of team awareness is crucial for a safe and effective working relationships, and positive patient outcomes.

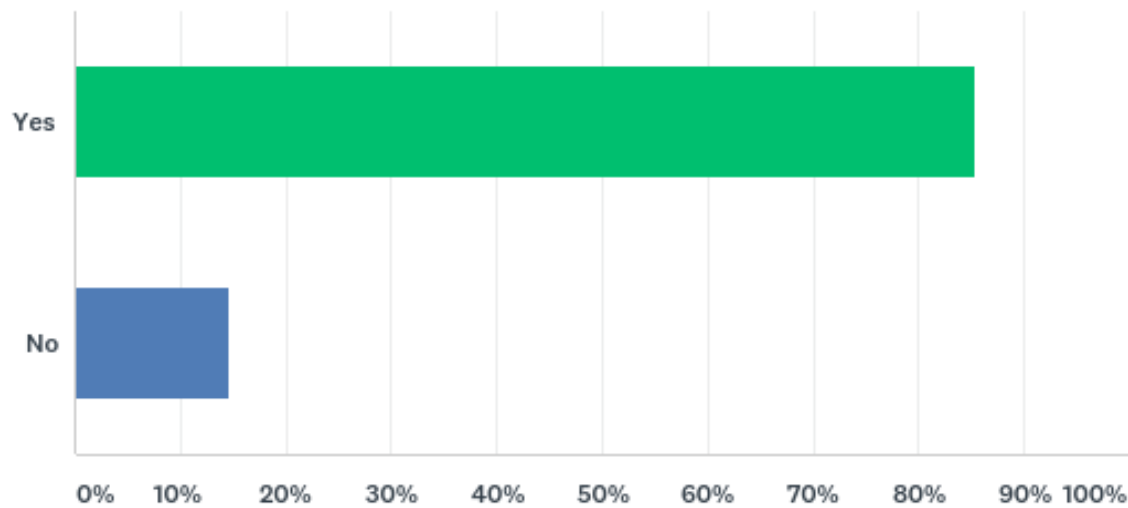


Figure 4.19. Bar chart of responses to Item 19.

**Responses to Item 20: Do you admit to your mistakes?** For this item, 98.34% (n = 237) of respondents answered “yes,” and 1.66% (n = 4) answered “no.” One respondent skipped the item (see Figure 4.20).

Because nurses possess such a high degree of autonomy, and admitting to one’s mistake could lead to the implementation of lifesaving interventions, nurses must be the type of individual who admits to their mistakes. In nursing, there is no punishment for making a mistake. However, the penalty for covering-up an error is severe.

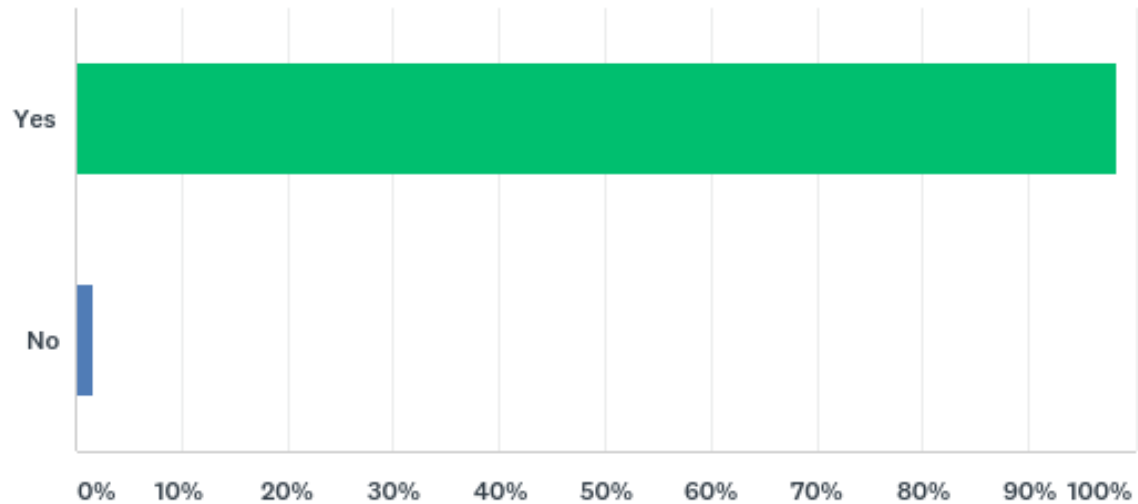


Figure 4.20. Bar chart of responses to Item 20.

**Reponses to Item 21: Did you have prior healthcare work experience when you applied to the associate degree nursing program?** This item yielded almost a 50/50 split, where 56.02% ( $n = 135$ ) responded “yes” they did have prior healthcare experience, and 43.98% ( $n = 106$ ) responded “no.” One respondent skipped the item (see Figure 4.21).

Based upon this study, prior healthcare experience cannot be considered necessary for successfully entering into the nursing profession. Nearly half of the respondents had no healthcare experience and were successful on entering into the nursing profession.

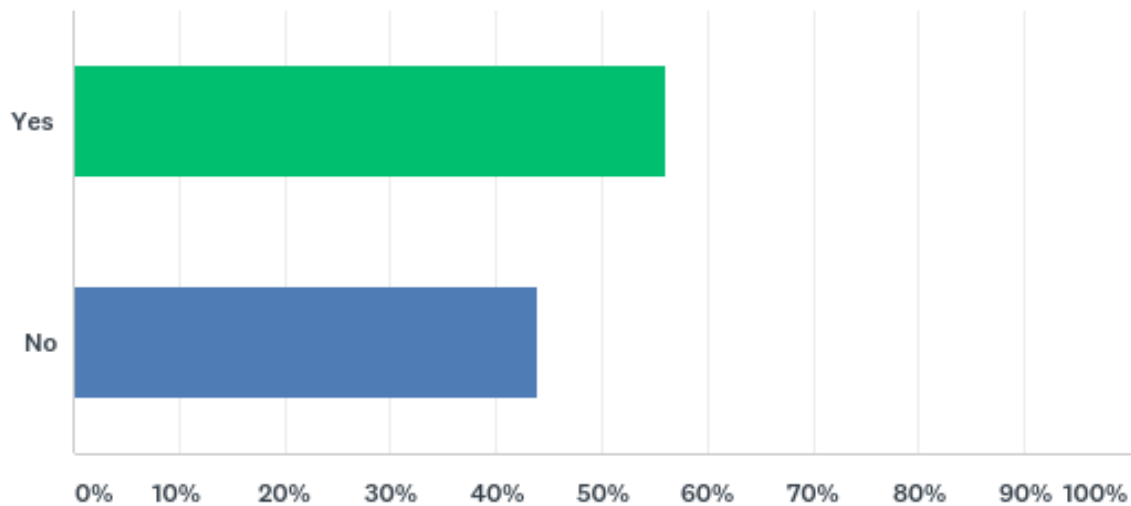


Figure 4.21. Bar chart of responses to Item 21.

**Responses to Item 22: Were you able to apply transfer credits when you enrolled into the nursing program?** For this item, 74.06% ( $n = 177$ ) of respondents were able to apply transfer credits when they enrolled into the nursing program, and 25.94% ( $n = 62$ ) were not. Three respondents skipped the item (see Figure 4.22).

As seen in Item 3, not all students earned degrees previously. However, this item revealed that nearly three-quarters of respondents had at least taken some courses and were able to transfer these credits.

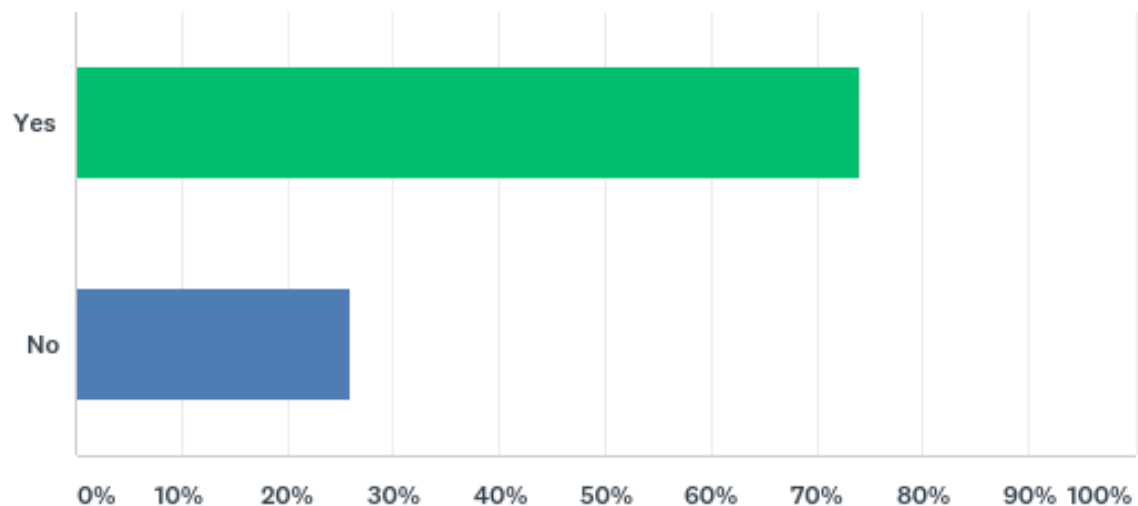


Figure 4.22. Bar chart of responses to Item 22.

**Reponses to Item 23: Would you describe yourself as resilient?** The large majority, 95.42% (n = 229) of the respondents consider themselves to be resilient, and 4.58% (n = 11) did not. Two respondents skipped the item (see Figure 4.23).

Similar to recovering quickly from failure, previously discussed in Item 15, being resilient is a trait that is beneficial for nursing students and nurses alike. Nursing students and nurses face many challenges as they progress through their nursing education, and later in their careers. Being resilient is a necessary trait to possess in order to be successful in the nursing profession due to the constantly evolving mental, emotional, and physical demands that are placed on nurses.

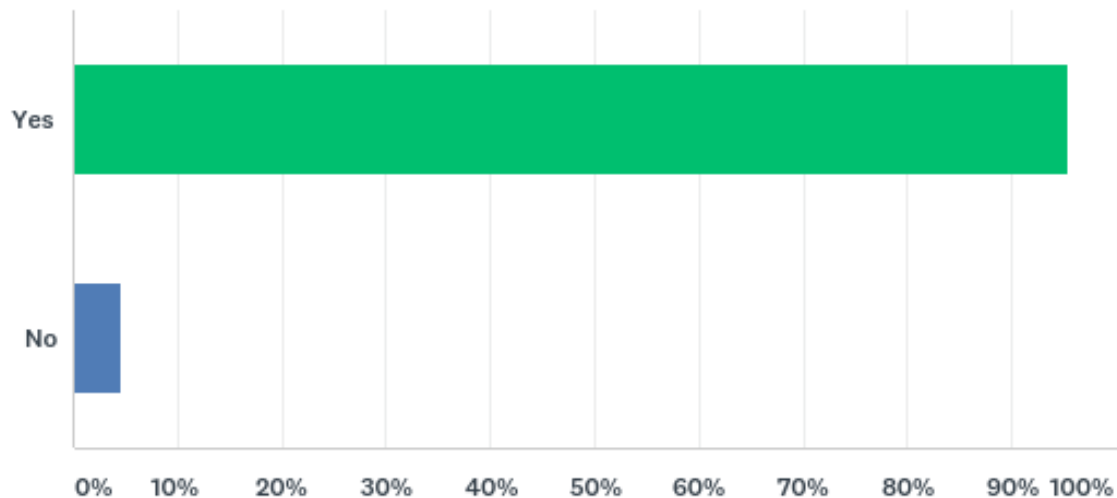


Figure 4.23. Bar chart of responses to Item 23.

**Reponses to Item 24: Did you repeat any of the prerequisite courses necessary for the nursing program?** For this item, 31.54% (n = 76) of the respondents self-reported as needing to repeat a prerequisite course necessary for the nursing

program, and 68.46% ( $n = 165$ ) did not. One respondent skipped the item (see Figure 4.24).

Apparently, once the students who repeated the prerequisite courses were successful, they were able to go on and enter into the nursing profession. Therefore, it is not necessary to exclude students from being admitted into nursing programs if they initially failed required prerequisite courses.

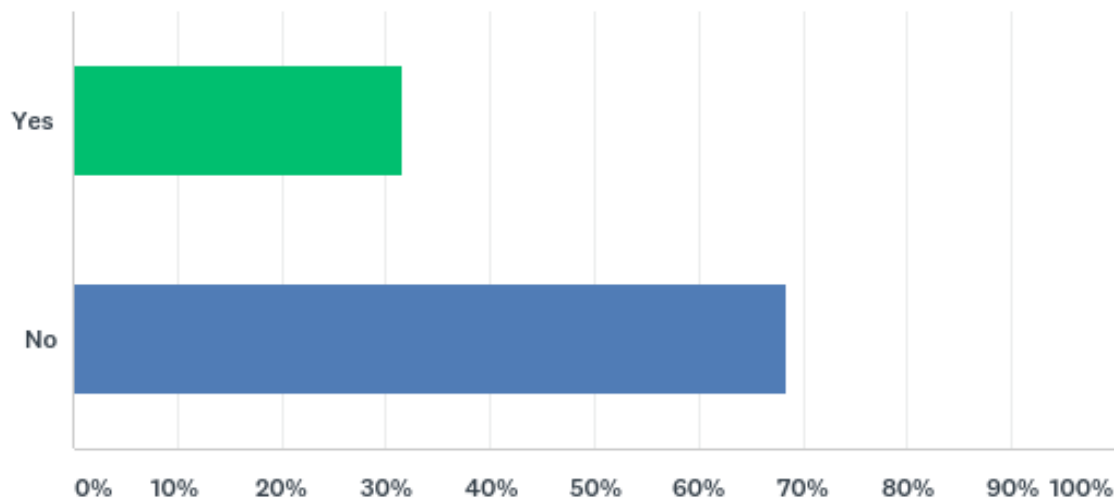


Figure 4.24. Bar chart of responses to Item 24.

**Responses to Item 25: Overall, do you believe you possess spiritual well-being?** The vast majority, 96.68% ( $n = 233$ ) of the respondents self-reported as possessing spiritual well-being, and 3.32 ( $n = 8$ ) did not. One respondent skipped the item (see Figure 4.25).

Due to the intense demands placed upon nurses, having a sense of spiritual well-being may allow nurses to feel healthier, and more reflective. Having a sense of spiritual well-being may also provide nurses with greater compassion, empathy, and may help to quiet their minds, which would be beneficial for nurses as well as the patients receiving their care.

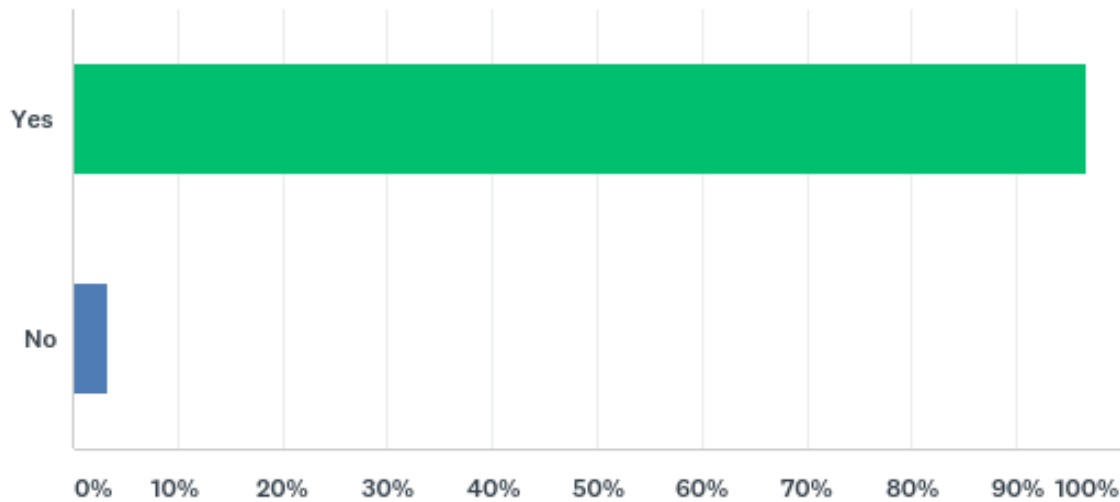


Figure 4.25. Bar chart of responses to Item 25.

**Responses to Item 26: Do you feel you possess leadership qualities?** For this item, 93.36% ( $n = 225$ ) self-reported having leadership qualities, and 7.05% ( $n = 17$ ) did not. One respondent skipped the item (see Figure 4.26).

Having leadership qualities is a valuable trait for nurses to possess, especially when considering the nursing shortage, which includes nurse leaders. Also, possessing leadership qualities is an important trait to include on a profile of individuals who will successfully enter into the nursing profession. Nursing programs need to help produce new graduate nurses who will one day become leaders in the nursing profession.

Therefore, seeking out potential leaders during admissions into nursing programs would be wise.

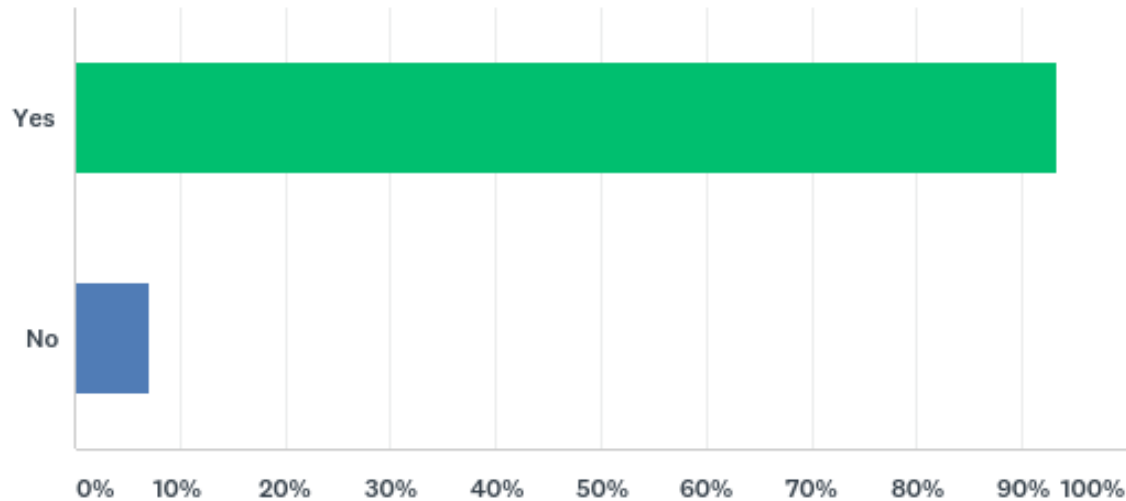


Figure 4.26. Bar chart of responses to Item 26.

**Reponses to Item 27: Did you earn your RN license in New York State?** One hundred percent ( $n = 241$ ) had earned a license. One respondent skipped the item (see Figure 4.27).

This item response was due to the college requirement that I only contact the graduates who were successful on the NCLEX to avoid any potential bad feelings about being contacted regarding a program in which they were ultimately unsuccessful. Prior to sending the survey out, I looked up each potential participant on the Office of Professions website to verify that they had a valid nursing license in New York State.

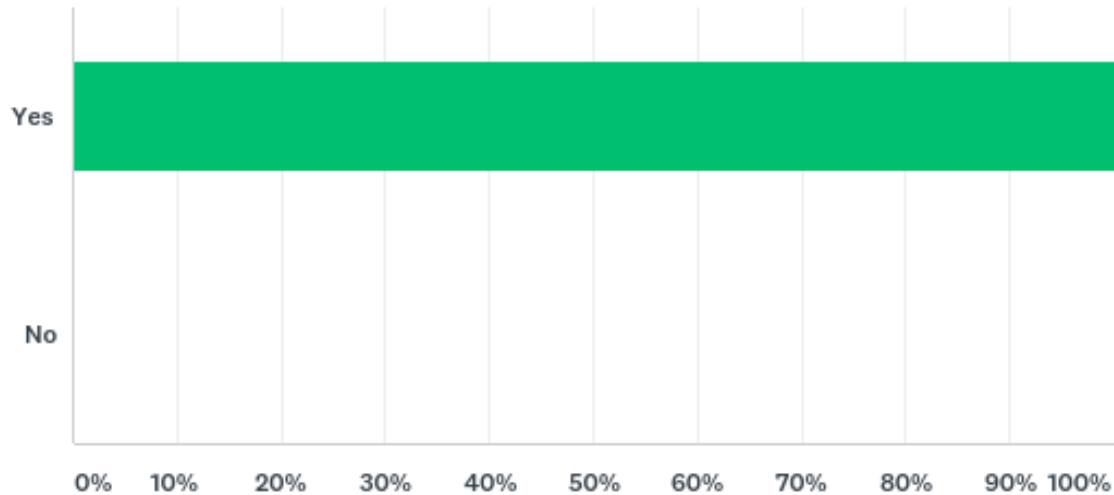


Figure 4.27. Bar chart of responses to Item 27.

**Responses to Item 28: Were you successful in passing the NCLEX-RN on your first attempt?** For this item, 89.63% ( $n = 216$ ) self-reported as being successful on the NCLEX-RN on their first attempt, and 10.37% ( $n = 25$ ) self-reported that they were not. One respondent skipped the item (see Figure 4.28).

The importance of this item is more for the nursing program than the nurse. Nurses are able to repeat the exam if they are unsuccessful. However, nursing schools' NCLEX-RN pass rates are based upon the number of candidates who are successful on their first attempt only. Therefore, the penalty for nursing school graduates who have to take the NCLEX-RN more than once is on the nursing school, not the nursing school graduate. As noted earlier, nursing schools risk losing their accreditation if their NCLEX-RN pass rates are not in keeping with the national average.



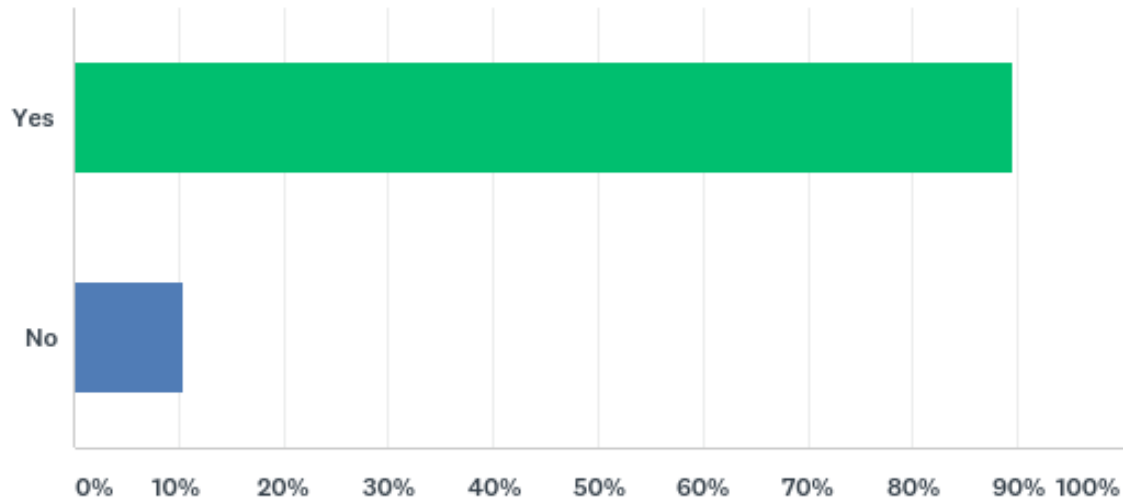


Figure 4.28. Bar chart of responses to Item 28.

**Responses to Item 29: Are you currently working in the nursing profession?**

For this item, 87.97% ( $n = 212$ ) of the respondents reported that they were currently working in the nursing profession, and 12.45% ( $n = 30$ ) self-reported that they were not. One respondent skipped the item (see Figure 4.29).

This response rate could be related to the fact that some were new graduates and had not been employed at the time they took the survey. However, according to the demographic data that were collected, 87% of graduates reported that they were employed. Therefore, this response rate is highly accurate.

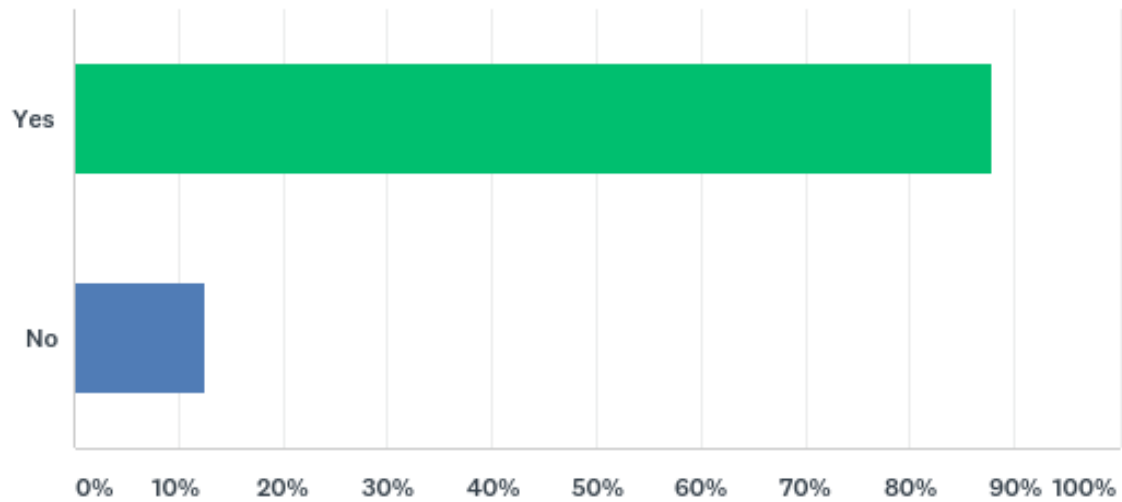


Figure 4.29. Bar chart of responses to Item 29.

**Responses to Item 30: Did you graduate from an associate degree nursing program?** One hundred percent ( $n = 241$ ) self-reported that they did graduate, and one respondent skipped the item (see Figure 4.30).

All of the respondents had earned a license. Therefore, they would have had to have graduated, or they would not have been qualified to sit for the state boards of licensing. The fact that I already expected the responses to be 100% “yes,” and it was, helps verify the accuracy of the overall survey responses.

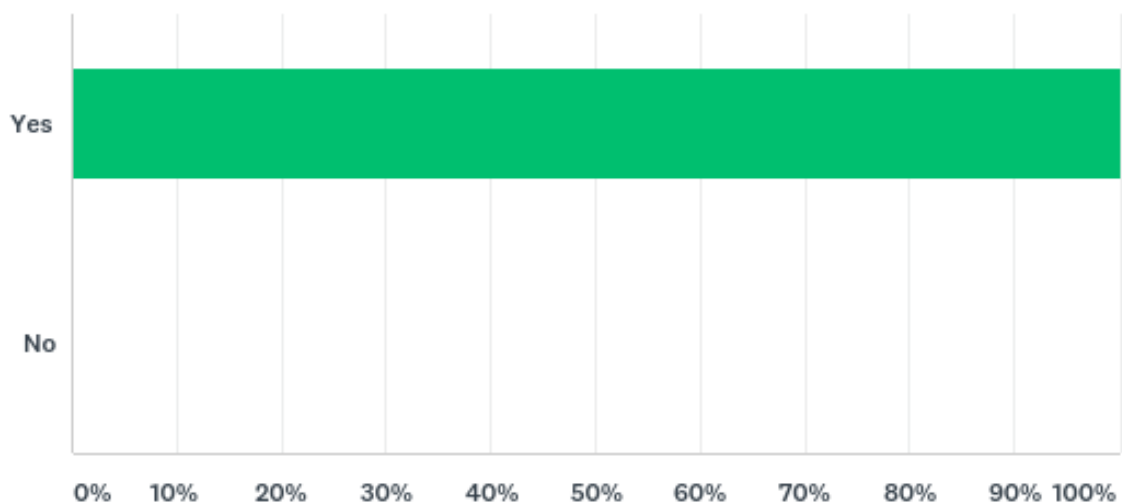


Figure 4.30. Bar chart of responses to Item 30.

**Reponses to Item 31: Were you in the full-time traditional (day) associate degree nursing program?** For this item, 61.41% (n = 148) self-reported that they were full-time day students, and 38.59% (n = 93) self-reported that they were not. One respondent skipped the item (see Figure 4.31).

Typically, day students work less hours per week than evening students, or they do not work at all. Evening students often work full-time. The day program is a rigorous four semesters, and the evening program is a slower paced six semesters. The evening program is designed for working professionals who are only available to complete coursework in the evening, as they work during the day.

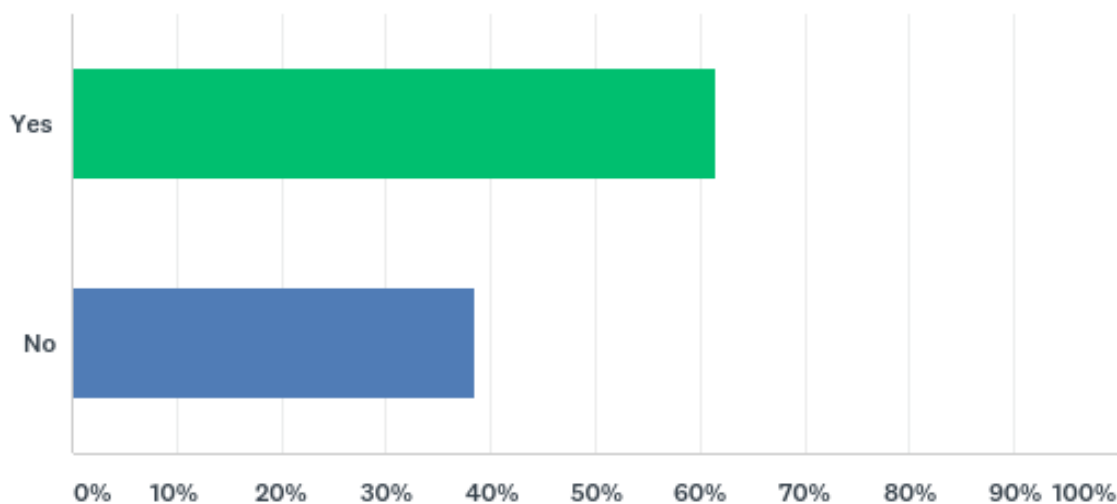


Figure 4.31. Bar chart of responses to Item 31.

**Reponses to Item 32: Were you in the part-time (evening) associate degree nursing program?** For this item, 40.25% (n = 97) self-reported that they were part-time evening students, and 60.17% (n = 145) self-reported that they were not evening students. One respondent skipped the item (see Figure 4.32).

The reason for the discrepancy between Items 31 and 32 not being exactly reciprocal is that occasionally students will change for the day to evening program or vice versa, thus, making the student select the “yes” response for both the day item and evening item. This item response reveals that whether or not students are full or part-time is not critical information to determine whether or not they will successfully enter into the nursing profession. Instead, it shows a need for the existence of both programs.

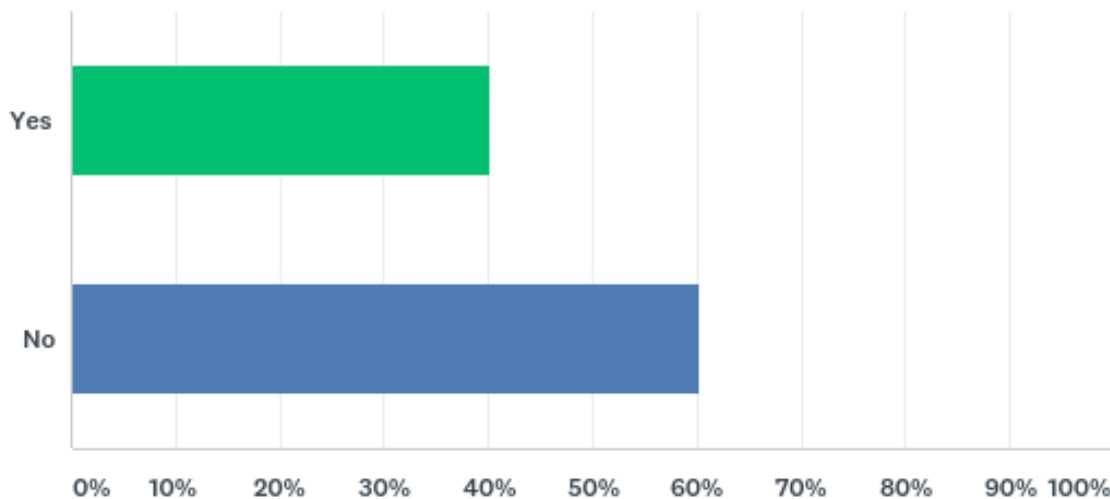


Figure 4.32. Bar chart of responses to Item 32.

### Qualitative Item Analysis

**Responses to Item 33: Why did you wish to become a nurse?** There was a finite number of responses to this item. Most of the participants (42.92%,  $n = 97$ ) reported that they wished to become nurses in order to help others. One participant stated, “I loved being with people and helping them when in need! It’s a privilege to be a nurse, to be able to help someone at their weakest point in their life! The trust is humbling!” Another participant reported, “To fulfill my life goal of helping others in whatever capacity they need.” Other participants mentioned past experiences that lead them to choose a career in nursing. For example, one participant stated, “It’s always been a dream of mine, since I

was hospitalized for 3 months as a young child, to help people.” Yet another participant explained:

I've always enjoyed helping others and making them feel good. I'd like to say that giving feeds my soul. Having the ability to be a positive influence on other lives started with caring for my family. I've always wanted to give back and be a part of something bigger than myself.

Similar to helping, the second most common response (16.94%,  $n = 41$ ) was that participants wished to become nurses because they wanted to care for others. One participant stated that they wished to become a nurse because of their personal experience and said they wished “to care for others the way I was cared for in the past.” Another participant wished to become a nurse because of his/her own beliefs and said, “Because I know that in this life we are supposed to help and care for others, and what better profession is there for that?” Other participants noted that their compassion impacted their desire to become a nurse, and stated they wished “to help take care of others and be a part of the care during a difficult time.” Yet, another participant was concerned about vulnerable populations and wished “to take care of people who can't take care of themselves.”

Several participants noted various reasons why they choose nursing because it is considered a good career path (14.88%,  $n = 36$ ). One participant mentioned that he/she choose nursing because he/she needed a “career with potential for growth and opportunities.” Another participant had more practical reasons for choosing nursing, and explained that he/she wanted “to have a career to support my family and provide job diversity.” Participants also stated that nursing was their choice because, “it's a flexible

career, with opportunities for life-long learning,” and was a “career that offered longevity and flexibility.” Another participant wished to become a nurse to build upon prior work experience, and explained:

I felt becoming a nurse would give me better opportunities in the future, including starting my own business. The flexibility, autonomy, and human interaction offered by a nursing career complimented the skills I had already acquired as a home health aide, CNA, phlebotomist, and server (waitress). As a continuous learner, being an RN satisfies my curious mind while also giving me a sense of personal fulfillment.

Other participants revealed personal reasons why they wished to become a nurse. For example, one participant stated, “I wanted to have a career that meant something other than making money to live, and I wanted to be educated enough on health and medicine to be able to help with my grandfather’s care.” Some participants felt that they always wanted to be a nurse. However, one participant shared, “I never thought I would be a nurse, but was in a situation where I needed to quickly find a career path due to personal issues. It was one of the best decisions I could have made.”

Some participants (5.79%,  $n = 14$ ) referenced that they wished to become a nurse due to the rewarding aspect of the nursing profession. One participant shared:

I wished to become a nurse because it's in my nature to take care of people. I learned that people trust my judgment, and that motivated me to become a nurse. It's a very rewarding career. I knew nursing was my calling. I had no plan B. It's what I was chosen to do and I could not be more grateful.

Other participants choose nursing not for the way they can make others feel. However, they choose nursing because of the way it makes them feel about themselves. One participant reported that he/she choose nursing “because it's a profession in which I feel is the most rewarding, and leaves me feeling accomplished every day.” Another participant reported that it was rewarding “to have the knowledge and skill set to help others in need.”

Some participants (5.37%,  $n = 13$ ) choose nursing because they wanted to make a difference. For example, participants reported that they choose nursing “to give back and make a difference,” and, “to be able to make a difference in people’s lives.” Again, some participants called on their own personal health history when they choose to become a nurse. One participant shared, “I love people and personally have experienced what it feels like when you're sick and you depend on other people. I believe that I can make the difference and help those who need professional nursing care.” One participant wished to be a patient advocate and stated, “I wanted to make a difference and advocate for people who are unable to do so for themselves.”

Fewer participants (4.13%,  $n = 10$ ) reported that they wished to become nurses for the challenge. Those who wanted a challenge explained, “I wanted a mentally challenging job that helped others and made society a better place.” Other participants reported that they were “motivated by challenges and seeking a rewarding career” and, “wanted a challenge, and wanted a career to be proud of...well-being is one of the top priorities for the population and I wanted to be able to positively affect peoples’ lives from this standpoint.”

Fewer participants (2.89%,  $n = 7$ ) wished to become nurses for a “secure

steady job,” “a secure salary” and, “a secure career.” Another reason why participants wished to become nurses, which came up infrequently, was stability (1.65%,  $n = 4$ ). One participant explained, “I wanted a stable career that allows flexibility.” Few respondents reported that they wished to become a nurse because it was their calling (1.65%,  $n = 4$ ). Those participants who did feel that nursing was their calling had this to say: “To help those in need of help, a natural calling in life,” “I feel it’s a calling for me,” and, “Nursing was a calling. I was destined to help others.” Still fewer participants reported that becoming a nurse was their dream (1.24%,  $n = 3$ ). One participant stated: “Something I always wanted, but only now did pursue that lifelong dream.” Table 4.3 illustrates these findings.

Table 4.3

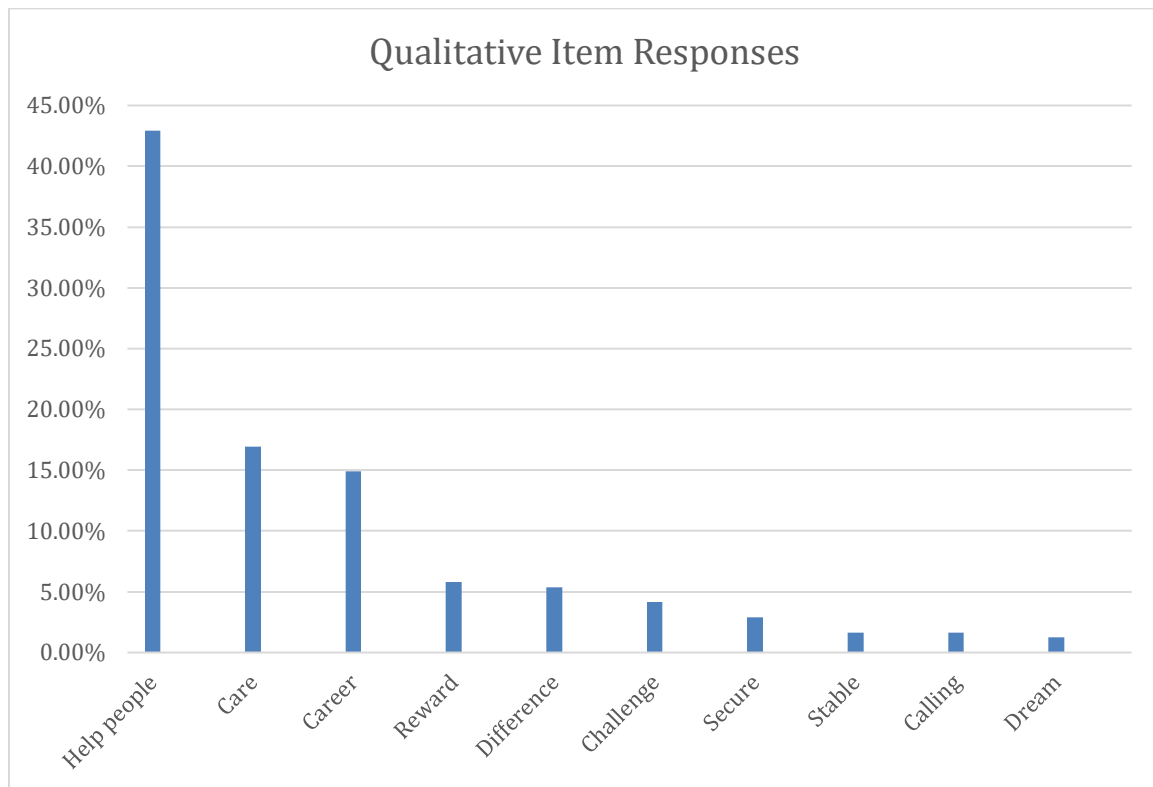
*Words and Phrases Noted in Item 33*

Phrase	Percentage	N
Help others	42.92%	97
Care for others	16.94%	41
Career	14.88%	36
Rewarding	5.79%	14
Make difference	5.37%	13
Challenge	4.13%	10
Secure	2.89%	7
Stable	1.65%	4
Calling	1.65%	4
Dream	1.24%	3

In order to see a visual representation of the qualitative item responses, a bar chart of responses was created (see Figure 4.33). As can be seen, the majority of respondents have a desire to help people, while others cited a desire to care for people. Still others reported choosing nursing because it is a career, which some find rewarding. Other



participants described a desire to make a difference, yet, others were seeking a challenge. Few participants noted choosing the nursing profession for reasons pertaining to security, stability, or because they felt that it was their calling. Even fewer participants stated that it was their dream to become a nurse.



*Figure 4.33.* Bar chart of responses to the qualitative item.

### **Summary of Individual Item Responses**

Overall, the item responses were not surprising. This fact lead me to believe that the theories and literature used to create the survey were appropriate for this study. An intensive review of the responses without the use of statistical software was completed. Based upon this review, it became clear that individuals who are applying to nursing programs need to be asked a series of questions that will reveal information about

themselves, that are not currently being included in the admissions process used by this ADN program.

Certain survey items addressed particular research questions. The following is a summary of which survey items sought to answer each research question. This section relied on an intensive analysis, and was compared and contrasted with statistical analyses later in this chapter.

Specific survey items addressed RQ 1: Which admissions criteria best predict that New York State Associate Degree Nursing (ADN) program applicants will enter into the nursing profession? These survey items were: Items 6, 12, 22, 24, 31, and 32. Based on an intensive analysis of the responses to these items, one of the best predictors that applicants will enter into the nursing profession was a GPA of 3.0 or higher on admission (Item 6). However, it did not appear to matter whether or not the applicants scored higher than 20 on their ACT (Item 12), applied transfer credits (Item 22), had to repeat a prerequisite (Item 24), were for the day program (Item 31) or for the evening program (Item 32). See Table 4.4 for a summary of these item responses.

Table 4.4

*Responses to Items Related to Research Question 1*

Item	Related to Research Question 1	"Yes"	N
6	Was your GPA over 3.0 when you were admitted?	93.33%	224
12	Was your ACT score over 20?	63.51%	141
22	Were you able to apply transfer credits when you enrolled?	74.06%	177
24	Did you repeat any of the prerequisite courses?	31.54%	76
31	Were you in the full-time nursing program?	61.41%	148
32	Were you in the part-time nursing program?	40.25%	97

Specific survey items addressed RQ 2: What is the likelihood of individuals entering into the nursing profession, who are veterans (a person who served in the active military, naval, or air service, and was discharged or released under conditions other than dishonorable), have earned prior degrees, and/or have prior healthcare experience? These survey items were: Items 3, 7, 10, and 21. Based on an intensive analysis of the responses to these items, one of the best predictors that applicants will enter into the nursing profession was whether or not the applicants had another career prior to going into the ADN program (Item 10). However, it did not appear to matter if the applicants had previously earned any other degree (Item 3), were veterans (Item 7), or had prior healthcare experience (Item 21). See Table 4.5 for a summary of these item responses.

Table 4.5

*Responses to Items Related to Research Question 2*

Item	Related to Research Question 2	"Yes"	N
3	Had you earned any other degrees?	52.92%	127
7	Were you a veteran?	3.33%	8
10	Have you had other careers before going into nursing?	67.22%	162
21	Did you have prior healthcare work experience?	56.02%	135

Specific survey items addressed RQ 3: Which noncognitive traits need to be examined during the admissions process to help identify applicants who are likely to succeed in an associate degree nursing program? These survey items were: Items 1, 2, 4, 5, 8, 9, 11, 13, 14, 15, 16, 17, 18, 19, 20, 23, 25, and 26. Based on an intensive analysis of the responses to these items, the criteria that best predicted that applicants will enter into the nursing profession were self-reporting: having good judgment (Item 1), seeking out challenges (Item 4), being capable of anything (Item 5), being professional (Item 9),

being an optimist (Item 11), needing to utilize what is learned (Item 13), being ethical in nature (Item 14), being able to recover quickly for failure (Item 15), being motivated by intrinsic factors (Item 16), being self-directed (Item 17), completing what one starts (Item 18), having a sense of team-awareness (Item 19), admitting to mistakes (Item 20), being resilient (Item 23), having a sense of spiritual well-being (Item 25), and possessing leadership qualities (Item 26).

The items that appeared to have little impact on entering into the nursing profession were being bilingual (Item 2) and multilingual (Item 8). However, as previously noted, ESL students often cannot apply to the program due to their inability to be successful on the entrance examination. See Table 4.6 for a summary of these item responses.

Table 4.6

*Responses to Items Related to Research Question 3*

Item	Related to Research Question 3	"Yes"	N
1	Do you consider yourself to have good judgment?	99.58%	239
2	Are you bilingual?	17.92%	43
4	Do you seek out challenges?	92.50%	222
5	Do you believe you are capable of achieving anything?	89.96%	215
8	Are you multilingual?	7.11%	17
9	Do you consider yourself to be professional?	98.76%	238
11	Do you consider yourself to be an optimist?	88.80%	214
13	Do you feel a need to utilize what you learn?	94.61%	228
14	Do you consider yourself to be ethical in nature?	99.59%	240
15	In the event of failure, do you recover quickly?	87.50%	210
16	Are you motivated by intrinsic factors?	97.10%	234
17	Are you self-directed?	96.68%	233
18	Do you complete something, once you have started?	98.34%	237
19	Are you aware of your coworkers' patient assignments?	85.42%	205
20	Do you admit to your mistakes?	98.34%	237
23	Would you describe yourself as resilient?	95.42%	229

25	Do you believe you possess spiritual well-being?	96.68%	233
26	Do you feel you possess leadership qualities?	93.36%	225

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To summarize, the admissions criteria that best predicted which applicants will enter into the nursing profession were: a GPA of 3.0 or higher on admission, whether or not the applicant had another career prior to going into the ADN program, self-reporting having good judgment, seeking out challenges, being capable of anything, being professional, being optimistic, needing to utilize what is learned, being ethical in nature, being able to recover quickly for failure, being motivated by intrinsic factors, being self-directed, completing what one starts, having a sense of team-awareness, admitting to mistakes, being resilient, having a sense of spiritual well-being, and possessing leadership qualities.

Item responses that did not appear to be predictive of entering into the nursing profession were: scoring higher than 20 on an ACT, applying transfer credits, repeating a prerequisite, whether or not one was admitted into the day or evening program, having previously earned any other degree, veteran status, prior healthcare experience, being bilingual, and being multilingual. Figure 4.34 provides a graphic representation of the survey items that have been discussed.

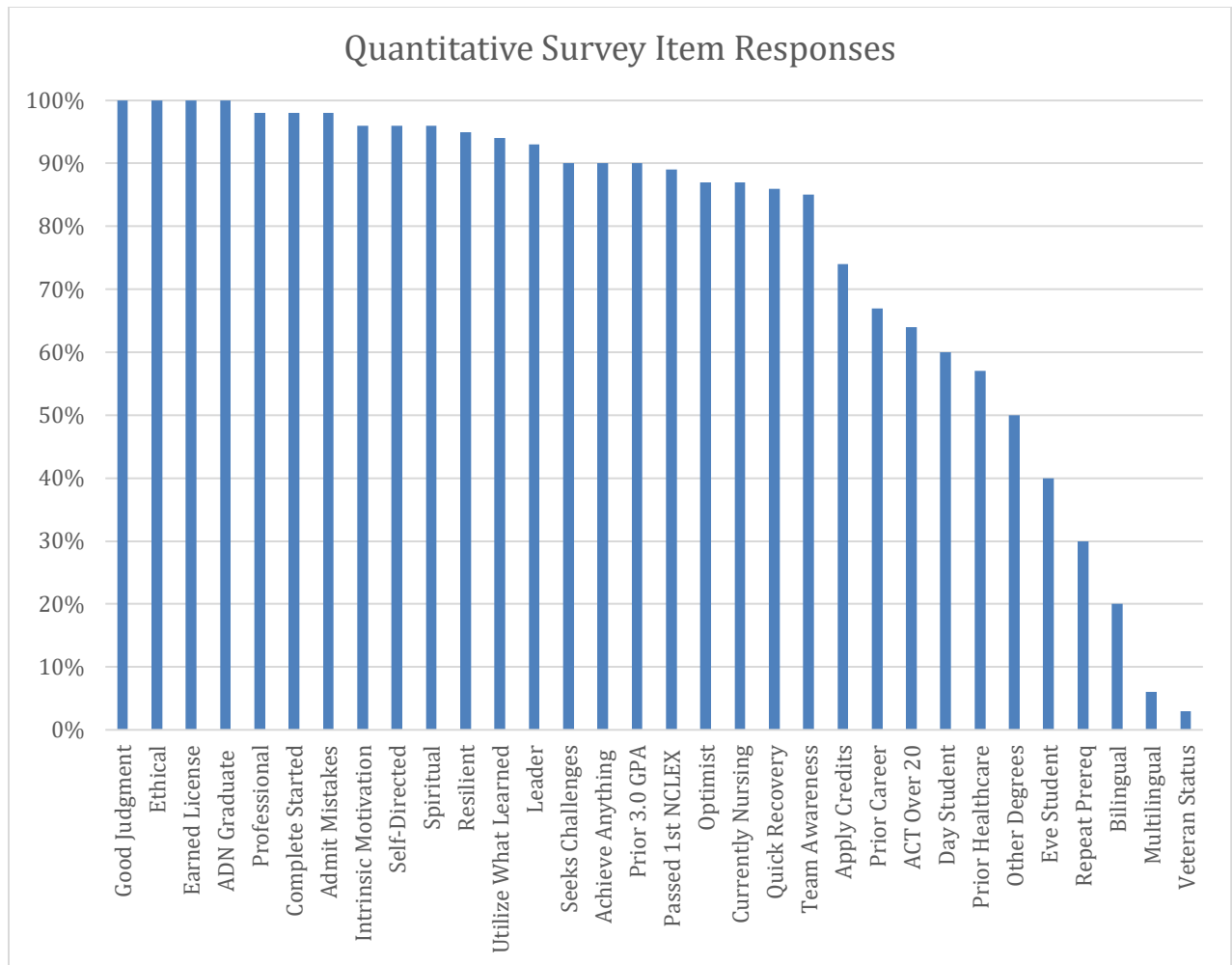


Figure 4.34. Bar chart of summary of quantitative item responses.

### Demographic Data of Participants

In order to gain insight about their responses on the survey, demographic data were collected from the nursing department regarding the participants' gender, ethnicity, highest degree earned, employment status, and whether or not they were the first generation in their families to attend college. The averages of those data collected for each campus and program were calculated. On average, the student body consisted of 74% females and 26% males. The ethnicity of these students was 69% White, 11% Black, 15% Hispanic, 3% Asian, 1% Pacific Islander, 1% Native American, and 1%

other. Regarding their highest degree earned prior to enrolling in the nursing program, 27% had earned an associate degree, 17% had earned a baccalaureate degree, 20% had earned a master's degree, 22% had earned a technical degree, and 14% had not earned a prior degree. After graduation, 87% were employed, and were working an average of 32 hours per week. Overall, 61% were the first members of their families to attend college (see Table 4.7).

Table 4.7

*Sample Demographics*


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Gender	
Female	74%
Male	26%
Ethnicity	
White	69%
Black	11%
Hispanic	15%
Asian	3%
Pacific Islander	1%
Other	1%
Highest Degree Earned	
Associate	27%
Baccalaureate	17%
Master's	20%
Technical	22%
None	14%
Employment Rate	
Employed after graduation	87%
Not employed after graduation	13%
Family Education History	
First to attend college	61%

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Not first to attend college      39%

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## RESULTS OF PHASE 2: LATENT CLASS ANALYSIS

### Class Model Selection using Split Sample Verification

The summary of fit values of 2, 3 and 4-class LCA models on each split sample is presented in Table 4.8. Using this summary, and my own judgment, I selected a 3-class model for final LCA modeling. This is because each split sample showed a 3-class model having the lowest ABIC with positive df, and the 3-class model provided useful information as it relates to the research questions of this study.

Table 4.8

*Fit Values of Each LCA Class Model Performed in Split Sample Verification*

Classes	Log Likelihood	df	BIC	ABIC	AIC	Likelihood Ratio
Split Sample 1						
1	-1001.49	82	2129.65	2044.34	2156.65	1058.78
2	-937.62	54	2133.26	1959.46	2188.26	931.02
3	-909.66	26	2208.71	1946.44	2291.71	875.12
4	-885.10	-2	2290.94	1940.19	2401.94	825.99
Split Sample 2						
1	-902.46	83	1931.83	1846.51	1958.83	838.23
2	-825.52	55	1909.57	1735.77	1964.57	684.36
3	-798.84	27	1987.82	1725.54	2070.82	630.99
4	-771.26	-1	2064.28	1713.51	2175.28	575.83

### Shared Profiles of Individuals Who Entered into the Nursing Profession

The latent classes that were revealed overlapped regarding the individuals' traits or behaviors. However, when viewed independently, the factors that are used to create each of the profiles depict unique combinations of characteristics. These characteristics,



when considered together, can describe three specific types of individuals whose abilities to succeed in nursing vary.

**Typical Nurse Latent Class 1: Full-time, Optimist, High ACT Score, Prior Career.** Latent Class1, which accounted for 56% of the participants, can be described as a full-time student, who is optimistic, scored high on the ACT, and had a career prior to applying to the nursing program. This type of student displays dedication to the program in that the full-time program is a rigorous four-semester, fast-paced program which is only offered in the daytime. It is not possible for a student to work a full-time job and successfully complete this program. Having a sense of dedication to the program is a valuable characteristic for nursing students to possess.

The fact that this latent class is described as being optimistic speaks to the student's self-efficacy. As discussed previously, the theory of self-efficacy implies that individuals who are optimistic possess self-efficacy. This too, is a valuable characteristic for nursing students to possess. Having a high ACT score is representative of being proficient in English, Reading, Mathematics, and Science. Since approximately half of test-takers do not score above 20, and the survey item asked participants if their ACT score was over 20, self-reporting an ACT score of over 20 would place the applicant in the top 50% of applicants.

The last trait noted for Latent Class 1 was already having a career prior to applying to the nursing program. Having any type of work experience is useful when entering a nursing program. Nurses require such a wide range of skills from customer service to time-management, to prioritization, that it almost does not matter what career an applicant had, rather simply that they had one.

**Typical Nurse Latent Class 2: Full-time, Pessimist (Realist), Low ACT Score, No Prior Career.** The second latent class, which accounted for eight percent of the participants, can be described as a full-time student, who is a pessimist (some may say “realist”), who had a low score on the ACT, and has no prior career experience. This class was viewed as being a less than ideal applicant for the nursing program. This type of applicant selected the rigorous, fast-paced day program which suggests dedication.

However, the pessimistic quality can be viewed as lacking not only a positive outlook, but self-efficacy as well. Additionally, the fact that this applicant scored less than a 20 on the ACT places this applicant in the lower half of test-takers calling into question their English, Reading, Mathematics, and Science abilities. These abilities are necessary for nursing students to be able to succeed. Finally, the fact that these participants had no prior career experience is also a disadvantage when trying to succeed in nursing school. It is feasible that due to reasons beyond their control, such as homelessness, struggled in high school, and did not score well on the ACT, led to their pessimism. The fact that these participants did not ever have a career, leads one to think that they were either young and fresh out of high school, or mothers who have decided to work outside of the home. Regardless, these participants were successful in entering the nursing profession, however challenging it may have been.

**Typical Nurse Latent Class 3: Part-time, Optimist, Low ACT Score, Prior Career.** The last latent class, which accounted for 36% of the participants, was also considered to be an ideal candidate for a nursing program. These participants were enrolled in the part-time program which is an evening, six-semester program designed for working professionals. Both the evening schedule and slower pace make the part-time

program a manageable option for students who need to work a full-time (day) job. Here too, the participants were optimistic, and therefore possessed self-efficacy, as previously discussed. The fact that they scored low on the ACT did not seem to impede their ability to become gainfully employed in a career prior to enrolling into the nursing program. This latent class, along with Latent Class 1, constitute ideal candidates for the nursing program and were successful in entering the nursing profession. The results of final 3-class survey LCA is summarized in the table below (see Table 4.9).

Table 4.9

*Summary of 3-class LCA*

		Latent Class		
		1	2	3
		56%	8%	36%
q1	Good judgment?	0.99	1	1
q2	Bilingual?	0.25	0	0.17
q4	Seek challenges?	0.96	0.89	0.86
q5	Achieve anything?	0.96	0.72	0.86
q6	GPA > 3.0?	0.98	1	0.88
q7	Veteran?	0.06	0	0.06
q8	Multilingual?	0.11	0	0.04
q9	Professional?	0.98	1	0.99
q10	Prior careers?	0.69	0	0.73
q11	Optimist?	0.93	0.53	0.86
q12	ACT > 20?	0.71	0.26	0.61
q13	Utilize learning?	0.95	0.92	0.96
q14	Ethical?	1	0.94	1
q15	Recover from failure?	0.93	0.67	0.88
q16	Intrinsically motivated?	0.98	0.89	0.96
q17	Self-directed?	0.99	0.83	0.95
q18	Completionist?	0.99	1	0.97
q19	Team Awareness?	0.87	1	0.82
q20	Admit mistakes?	0.98	1	0.99
q22	Applied transfer credits?	0.81	0.63	0.64
q23	Resilient?	0.94	1	0.96
q24	Repeat prerequisites?	0.39	0	0.27

q25	Spiritual well-being?	0.97	0.95	0.96
q26	Leadership qualities?	0.96	0.84	0.91
q27	Earn RN license?	1	1	1
q28	Pass on 1st attempt?	0.92	0.89	0.9
q29	Currently working in nursing?	0.92	0.88	0.83
q30	Graduate?	1	1	1
q31	Full-time program?	0.97	0.94	0.03
q32	Part-time program?	0.02	0	1

### **Behaviors Common Across All Latent Class Profiles of Individuals Who Successfully Enter into the Nursing Profession**

Survey results indicated that regardless of LCA classification, participants who successfully entered into nursing possessed certain common traits/ideals: good judgment, seeking out challenges, utilization of prior learning, ethical, intrinsically motivated, self-directed, desire to complete projects, admitting their mistakes, resiliency, high spiritual well-being, high leadership tendencies, and passing the NCLEX-RN test on their first attempt. These commonalities are derived from survey response probabilities that were similar among all three groups.

### **Profile of the Behaviors of Ideal Nursing Program Applicants**

It is believed that behaviors unique to classes 1 and 3 in the LCA identify ideal nursing program applicants. In addition to the commonalities listed above, these applicants possess generally optimistic tendencies, and believing that they can achieve anything. They are also likely to have previous careers and have enjoyed high academic success in the past.

### **Analysis of the LCA**

There were three latent classes that emerged from this study. In order to identify the unobserved heterogeneity and determine the number of latent classes that emerged from the survey responses BIC indicators were used to test for goodness of fit. The results are detailed below.

- BIC for 1 latent class = 4585.2
- BIC for 2 latent classes = 4505.8
- BIC for 3 latent classes = 4596.8
- BIC for 4 latent classes = 4690.8

While the 2-class model had the lowest BIC, the classes in this model were split entirely by whether the graduate was a part-time or full-time student and provided no other considerable comparative information. Therefore a 3-class model was chosen, as it had a similar BIC to the 2-class model and separated the graduates into more useful classes (see Table 4.10).

Table 4.10

*Test for Goodness of Fit*

Model Classes	Log Likelihood	df	BIC	Adjusted BIC
1	-2211.8	188	4585.2	4490.1
2	-2088.7	157	4505.8	4312.5
3	-2050.7	126	4596.8	4305.3
4	-2014.2	95	4690.8	4301.0
5	-1998.6	64	4826.4	4338.3
6	-1972.9	33	4942.0	4355.7

Classes 1 and 3, which represent 92% of the survey population, appear to be separated primarily by whether they took the nursing program full-time or part-time. It

can be noted, however, that the full-time students had a .09 higher probability of currently working in nursing (see Figure 4.35).

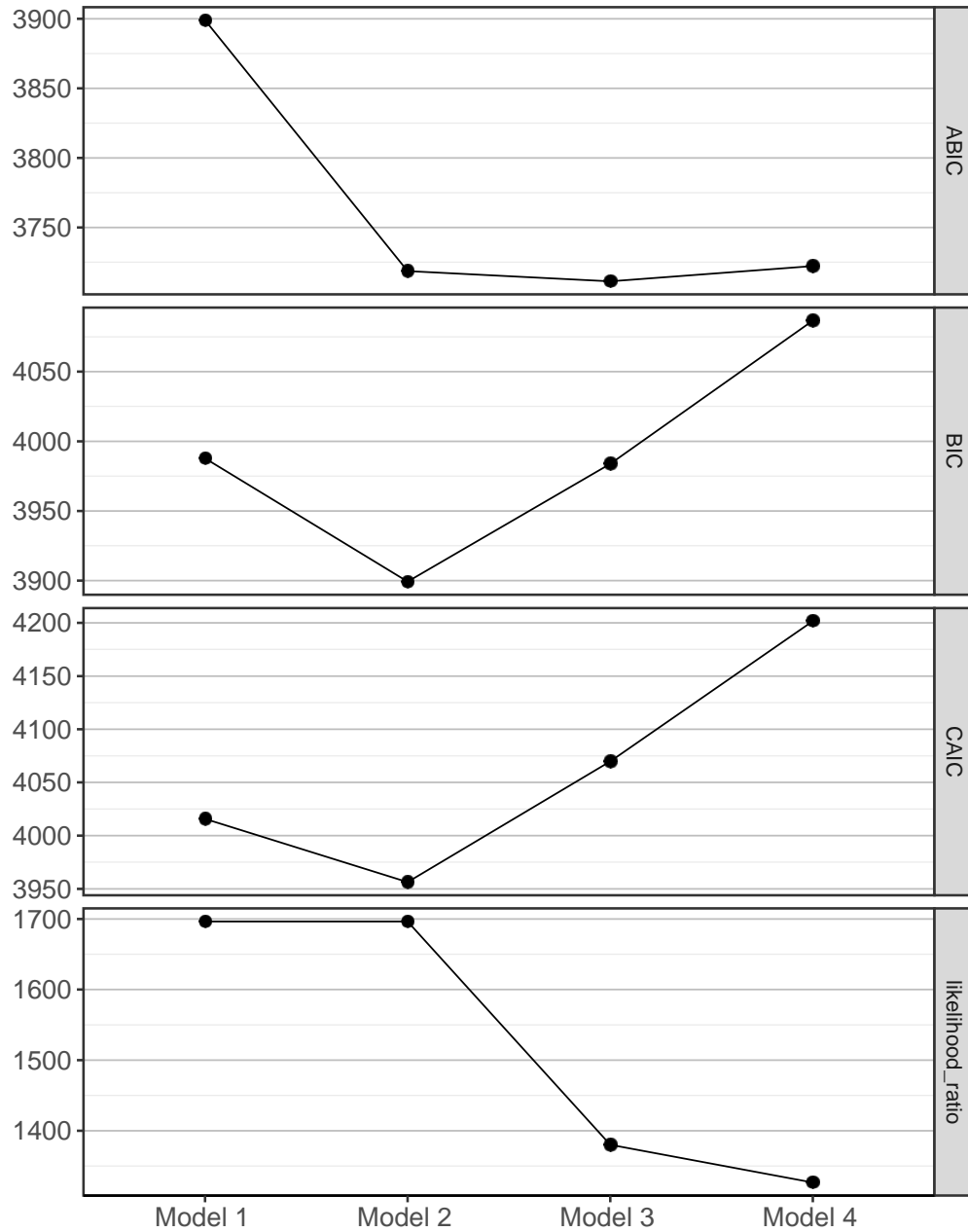


Figure 4.35. Elbow plot showing the BIC and AIC values for all class models.

**Examination of Class Separation**

The remaining eight percent of the population was sorted into Class 2 and differs from the majority of survey takers in several academic and non-academic respects. Academically, these graduates have a lower probability of scoring above 20 on the ACT. The lower academic tendencies in this class are paired with interesting non-academic tendencies, such as a lower probability of believing that they can achieve anything, having a prior career, being an optimist, and believing they can recover from failure. Overall, it appears that only a small proportion of successful graduates possess negative, pessimistic or doubtful tendencies, and these tendencies are associated with less life experience and lower academic success (see Figure 4.36).



Figure 4.36. Probability of answering yes to each survey question, by class grouping.



### **Chapter Summary**

In this chapter, I have presented the results of the CFA, an analysis of the individual item responses, including the qualitative item, and a summary of the item responses in how they relate to the research questions. I then presented the demographic data of the participants. After the demographic data, I presented the results of the LCA, and provided the shared profiles of individuals who entered into the nursing profession, and described their common behaviors. Last, I presented the profile of the behaviors of ideal nursing program applicants, and then I examined class separation.

In the next chapter, I presented conclusions and implications for educational research, theory, policy, and practice. I also presented study limitations, as well as recommendations for future research.

## CHAPTER V

### CONCLUSIONS AND IMPLICATIONS FOR RESEARCH, THEORY, POLICY, AND PRACTICE

This study highlights the importance of filling limited ADN program seats with applicants who are most likely to enter into the nursing profession. As seen in the literature review, other disciplines also struggle with applicant selection, and many different methods of choosing applicants exist. Due to the nursing shortage and high turnover rate of nurses discussed in Chapter 1, there is a dire need to create an effective admissions process for these nursing programs.

As a result of this study, it has become even more clear that a holistic admissions process is needed in ADN programs. As can be seen by the results of the survey and LCA, nurses who successfully entered into the nursing profession shared like traits/ideals. These trait/ideals included: having good judgment, seeking out challenges, utilizing prior learning, being ethical, being intrinsically motivated, being self-directed, having a desire to complete projects, admitting their mistakes, having resiliency, having spirituality, possessing leadership tendencies, and passing the NCLEX-RN test on their first attempt. These commonalities are derived from survey response probabilities that were similar among all three groups.

However, the LCA revealed three latent classes that can be described as either full-time, optimist, with a high ACT score, and prior career; or full-time, pessimist (realist), with a low act score, and no prior career; or part-time, optimist, with a low ACT score, and a prior career.

### Conclusions

The responses to the survey items appeared to create a more useful profile than the LCA. Based upon the survey results, most of the participants surveyed self-reported: earning a GPA of 3.0 or higher, having good judgment, seeking out challenges, being capable of anything, being professional, being optimistic, needing to utilize what is learned, being ethical in nature, being able to recover quickly from failure, being motivated by intrinsic factors, being self-directed, completing what one starts, having a sense of team-awareness, admitting to mistakes, being resilient, having a sense of spiritual well-being, and possessing leadership qualities. This information would be useful to an admissions counselor when choosing applicants for admittance into nursing programs.

The LCA revealed three latent classes. A description of the individuals in Latent Class 1 would be: a full-time student, who is an optimist, earned a high ACT score, and had a career prior to going into nursing. A description of the individuals in Latent Class 2 is: a full-time, pessimist (realist), who earned a low ACT Score, and did not have a career prior to going into nursing. A description of the individuals in Latent Class 3 is a part-time student, who is an optimist, earned a low ACT score, and had a career prior to going into nursing. This information would not be as descriptive as would be necessary to use during an admissions process that was created to select the applicants who are most likely to enter into the nursing profession. Therefore, I would conclude that a combination of the LCA and the survey results be viewed together during any use in ADN program admissions departments.

Now that this study has been completed, and the determination of homogeneity or heterogeneity in successful nurses' traits and characteristics has been made, suggestions

for improvement for admissions processes in ADN programs are available. I have had the honor of teaching many of the participants in this study. As such, it was for somewhat selfish reasons that I sought to create this profile. I would enjoy having classrooms filled with more students, such as these participants, who have an unquenchable thirst for knowledge, and the drive to go on and improve patient outcomes, become leaders and change agents in healthcare, and remain in the profession of nursing for a long and satisfying career.

### **Implications for Research**

A study that that would fully validate the survey to be used as a profiling instrument in admissions processes is necessary. The purpose of this study was to develop a profile of an ideal candidate for an ADN program. However, as it turned out, the survey responses, where almost every participant responded “yes,” has become a form of a profile.

Conversely, the LCA did not yield as much useful information as I predicted in terms of creating a profile of applicants who are likely to enter into the nursing profession. However, the LCA was useful in describing three different types nurses by analyzing the survey responses. If I were to provide admissions officers with the information gathered by the LCA alone, it would not be entirely useful for selecting applicants who are likely to enter into the nursing profession. However, if I provided the information from the survey responses along with the information from the LCA, that would be very useful information for admissions officers. Using a LCA for the purpose of creating a profile was a novel approach. I would recommend that other associate

degree nursing programs replicate the study, including the survey, and see how their results compare or contrast with this study.

I would also recommend conducting a longitudinal study. In this type of study, applicants would complete the survey, once admitted into the nursing program. I would then follow the cohort through the program, to graduation, sitting for NCLEX-RN, and becoming gainfully employed. I would make a comparison as to which students responded “yes” to the items that mentioned: having a GPA of 3.0 or higher on admission, whether or not the applicant had another career prior to going into the ADN program, self-reporting having good judgment, seeking out challenges, being capable of anything, being professional, being optimistic, needing to utilize what is learned, being ethical in nature, being able to recover quickly from failure, being motivated by intrinsic factors, being self-directed, completing what one starts, having a sense of team-awareness, admitting to mistakes, being resilient, having a sense of spiritual well-being, and possessing leadership qualities. I would then see if my hypothesis holds true that this survey, did indeed create (however inadvertently) a profile that could effectively be used to choose candidates who will successfully enter into the nursing profession.

### **LCA for Admissions**

The one aspect of LCA that was not favorable for admissions was that the items that were answered in the affirmative by *all* of the respondents were not used in the LCA. The reason for this elimination is because if all respondents answered the same item in the same way, it would not help to differentiate the latent classes. However, the items in which all of the respondents answered the same way are critically important to consider when building a profile of applicants. For example, if all respondents self-reported being

ethical, this information would not assist in determining what class each respondent belongs in, but it would suggest that being ethical is an important characteristic we need to look for in applicants to nursing schools.

As it turned out the only items that were answered “yes” by all participants were Item 30: Did you graduate from an associate degree nursing program? and, Item 27: Did you earn your RN license in New York State? Therefore, it was not detrimental to the results of the LCA. However, that may not be the case in future studies that are conducted for the purpose of replicating these results.

### **Implications for Theory**

Three items in the survey were related to adult learning theory (Knowles, 1996). Knowles (1996) believed that a unique quality of the adult learner is the desire to utilize what is learned. Item 13 asked the participants directly if they felt a need to utilize what they learn. Because 94.61% of participants answered “yes” to this item, this survey helps to reinforce the adult learning theory.

Further, adult learning theory suggested that adult learners can be motivated by extrinsic factors such as professional advancement and monetary gain, however, the stronger motivational factors are intrinsic (Knowles, 1996). These factors include improved self-image, increased duties, and reaching goals (Knowles, 1996). Item 16 asked participants if they were motivated by intrinsic factors. Almost all participants, 97.10% self-reported being motivated by intrinsic factors, again reinforcing Knowles’ theory (1996).

Finally, Knowles (1996) proposed that adult learners arrive with the ability to be in control of themselves. Therefore, they have a need to be self-directed, and viewed by

others as being responsible and in charge (Knowles, 1996). Item 17 asked participants if they are self-directed. The vast majority, 96.68% of the respondents self-reported being self-directed. Here too, adult learning theory is reinforced in that all of the participants were adult learners.

In terms of theory, this study supported all that adult learning theory suggested. Adult learning theory certainly applies to this study in that all of the participants of this study were adult learners, and their item responses for those items reflective of this theory support Knowles (1996).

### **Implications for Policy and Practice**

The LCA performed in this study provided valuable insight regarding what factors can be considered in an effective holistic review of nursing program applicants. The LCA revealed that only eight percent of successful graduates now in nursing programs had higher probabilities of pessimistic or doubtful tendencies, and these traits were associated with lower previous academic success. This class also had lower probabilities of previous degrees or careers. Given the stressful and demanding nature of the nursing profession, it is not surprising that most successful nurses are hardworking optimists with well-rounded backgrounds. I recommend that future nursing school admissions processes take noncognitive skills, or personality types, into account to maximize the acceptance of students most likely to succeed in the nursing profession.

Moreover, based on this study, I have recommendations for policy and practice for ADN programs in the Northeastern United States. The literature shows that army medics do well in nursing programs, yet, few were graduates of this program. The reason for the lack of veterans in this program is due to the way that veteran benefits are

distributed. A veteran's benefits are structured to coincide with BSN programs, not ADN programs. I find it to be unfortunate in that veterans, who often require salaries that are suitable to care for their families and other responsibilities, are not able to become nurses in as little as four semesters. Instead, they must study nursing for four years before they can begin working as registered professional nurses. If veteran benefits coincided with ADN programs, veterans would be able to begin earning salaries in two years, not four, and then would be able to go onto an RN to BSN accelerated program after graduation from the ADN program. I feel this would be an easy, yet, necessary and beneficial change for those who serve and protect our nation to streamline their transition back into civilian life.

Another recommendation regarding changes to policy and practice that I would make involves ESL students. As I discovered through during my research, because students are largely evaluated by their TEAS exam score, many ESL students are unable to gain access to the program. If my instrument can be fully validated, the items involving bilingual and multilingual can be weighted such that ESL students will have a fair chance at gaining admittance into nursing programs. Once the issue of fairness is raised, policy changes that can help provide equal opportunities for all need to be addressed.

Once admitted into the program, these students must be provided with English language support to help ensure their success in the program. Aside from medical terminology, there are many words found in the nursing curriculum that would not likely be included in ESL classes. For example, the word "groggy." If students did not know what that word meant, they would not be able to answer a test question which contained



this unusual word correctly. Therefore, I recommend that ESL students be provided with an extra course in nursing terminology to help them succeed.

This policy change would obviously benefit the ESL students. However, there would also be a great benefit to nursing programs by increasing the diversity of their students. Additionally, healthcare facilities where these graduate nurses would work, would benefit, as would the multicultural patient population who would receive care from these diverse nurses.

### **Study Limitations and Future Research**

Study limitations included issues concerning the survey item which asked respondents about their ACT score being over 20. Twenty respondents skipped this question on the survey. Presumably because they either did not take the ACT, or they do not recall their score. In either case, that item may be eliminated in future studies.

Another limitation was that this study was limited to one nursing program. The reasons for this limitation was due to convenience, and also due to the inability to locate other similar nursing programs in the state. The program in this study is the largest in the state, and as such, has a unique set of challenges that smaller colleges do not have. Therefore, if other dissimilar nursing programs were included in the study, the results may not have been valuable to this particular program, thereby rendering them useless.

In terms of future research enhancements to this study, I would recommend that the qualitative item be expanded. The qualitative item asked, “Why did you wish to become a nurse?” One respondent answered that it was due to their “upbringing.” This was an unusual response, and I would have been interested in seeing what type of upbringing leads a person to wish to become a nurse. I would have liked to have been

able to ask the respondent to tell me more about that. I would have wanted to know if it was because this individual was raised to help those in need, or was it because he/she was raised to have a stable career and income, or was a family member a nurse or a patient? Many responses to the qualitative item were brief, and seemed incomplete. Therefore, a qualitative study that explores why individuals go into nursing may be valuable. Specifically, in terms of targeted recruitment.

Additionally, the LCA yielded information that suggested having a career prior to going into nursing was a commonality between the latent classes. Therefore, future studies that help determine which specific types of prior work experience are most helpful to future nurses may be useful. I had a multifaceted background prior to going into nursing and I found my experience in sales and customer service to be helpful. I also found my communication and documentation skills from my experience as a caseworker to be invaluable.

Finally, I was interested to see that 96.68% of participants self-reported have a sense of spiritual well-being. That response rate left me wondering whether spiritual people are drawn to the nursing profession, or if working in the nursing profession causes one to develop a sense of spiritual well-being. I would enjoy conducting a qualitative study that would help answer that question. If spiritual people are drawn to nursing, that would be helpful in terms of targeted recruitment. If nurses become spiritual after becoming nurses, then spiritual support should be provided to new graduate nurses. Either way, it would be an interesting subject for a study which could be used in terms of nursing retention as well.

This study explored admissions criteria that best predict nursing success, and also revealed additional information that can be used by ADN programs. Overall, this study provides a valuable contribution to the field of nursing education. It also provides researchers with information about potential studies that can be conducted in the future to further enhance nursing program admissions processes. The need to predict which nursing program applicants will enter into the nursing program is an issue that will continue to grow in severity due to the nursing shortage, and poor nurse retention rates, and attrition rates in nursing programs. Conducting this study was an important first step in addressing these issues.

## References

- Abdulla, D. (2012). Attitudes of college students enrolled in 2-year health care programs towards online learning. *Computers & Education*, 59(4), 1215-1223.  
doi:10.1016/j.compedu.2012.06.006
- Accreditation Commission for Education in Nursing. (2017). *ACEN 2017 Standards and criteria*. Retrieved from [http://www.acenursing.net/manuals/sc2017\\_A.pdf](http://www.acenursing.net/manuals/sc2017_A.pdf)
- Allison-Jones, L. L. (2002). *Student and faculty perceptions of teaching effectiveness of full-time and part-time associate degree nursing faculty* (Doctoral dissertation, Virginia Tech). Retrieved from:  
<https://vtechworks.lib.vt.edu/handle/10919/29188>
- Allison-Jones, L. L., & Hirt, J. B. (2004). Comparing the teaching effectiveness of part-time & full-time clinical nurse faculty. *Nursing Education Perspectives*, 25(5), 238-243.
- American Association of Colleges of Nursing. (2013). *2012-2013 enrollment and graduations in baccalaureate and graduate programs in nursing*. Retrieved from <http://www.aacn.nche.edu/news/articles/2015/enrollment>
- American Association of Colleges of Nursing. (2017). *Nursing faculty shortage*. Retrieved from <http://www.aacn.nche.edu/media-relations/fact-sheets/nursing-faculty-shortage>
- American Association of University Professors. (2017). *Background facts on contingent faculty*. Retrieved from <https://www.aaup.org/issues/contingency/background-facts>

- American Nurses Association. (2014). *Increased investment needed to produce 1.1 million registered nurses, head off nursing shortage* [Press release]. Retrieved from <http://www.nursingworld.org/MainMenuCategories/ThePracticeofProfessionalNursing/workforce/Increased-Investment-Needed-to-Produce-11-Million-RNs-Head-Off-Nursing-Shortage.pdf>
- American Nurses Credentialing Center. (2011). *Magnet recognition program® overview*. Retrieved from <http://www.nursecredentialing.org/Documents/Magnet/MagTeachTips.pdf>
- Atkinson, J. W. (1964). *An introduction to motivation*. Princeton, NJ: VanNostrand.
- Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (Vol. 4, pp. 71-81). New York: Academic Press. (Reprinted in H. Friedman [Ed.], *Encyclopedia of mental health*. San Diego: Academic Press, 1988).
- Beauvais, A. M., Stewart, J. G., Denisco, S., & Beauvais, J. E. (2014). Factors related to academic success among nursing students: A descriptive correlational research study. *Nurse Education Today*, 34, 918-923. doi:10.1016/j.nedt.2013.12.005
- Brannagan, K. B., & Oriol, M. (2014). A model for orientation and mentoring of online adjunct faculty in nursing. *Nursing Education Perspectives*, 35(2), 128-130. doi:10.5480/1536-5026-35.2.128
- Bureau of Labor Statistics. (2017). *Occupational outlook handbook*. Retrieved from <https://www.bls.gov/ooh/healthcare/registered-nurses.htm>

- Castejón, J., Gilar, R., Miñano, P., & González, M. (2016). Latent class cluster analysis in exploring different profiles of gifted and talented students. *Learning and Individual Differences, 50*, 166-174. doi:10.1016/j.lindif.2016.08.003
- Chen, S., & Voyles, D. (2013). HESI admission assessment scores: Predicting student success. *Journal of Professional Nursing, 29*(2), 32-37. doi:10.1016/j.profnurs.2012.06.008
- Community College Review. (2017). *Profiles of USA community colleges*. Retrieved from <https://www.communitycollegereview.com>
- Cook, L. K., Dover, C., Dickson, M. A., Underwood, J., & Engh, B. C. (2014). Hybridization: The challenges an ADN program faces in entering the academic cyber world. *Teaching and Learning in Nursing, 9*(1), 30-36. doi:10.1016/j.teln.2013.07.006
- Creech, C., Cooper, D., Aplin-Kalisz, C., Maynard, G., & Baker, S. (2018). Examining admission factors predicting success in a doctor of nursing practice program. *Journal of Nursing Education, 57*(1), 49-52. doi:10.3928/01484834-20180102-10
- Crooks, N. (2013). Mentoring as the key to minority success in nursing education. *Association of Black Nursing Faculty Journal, 24*(2), 47-50.
- Crouch, S. J. (2015). Predicting success in nursing programs. *Journal of College Teaching & Learning, 12*(1), 45. doi:10.19030/tlc.v12i1.9069
- Dapremont, J. A. (2014). Black nursing students: Strategies for academic success. *Nursing Education Perspectives, 35*(3), 157-161. doi:10.5480/11-563.1

- Denson, N., & Ing, M. (2014). Latent class analysis in higher education: An illustrative example of pluralistic orientation. *Research in Higher Education*, 55(5), 508-526. doi:10.1007/s11162-013-9324-5
- Edmonds, M. (2013). "I want to be a nurse!": A qualitative descriptive study on the impact of an "introduction to nursing" course. *Journal of Education and Training Studies*, 1(1), 221-226. doi:10.11114/jets.v1i1.56
- Elder, S. J., Svoboda, G., Ryan, L. A., & Fitzgerald, K. (2016). Work factors of importance to adjunct nursing faculty. *Journal of Nursing Education*, 55(5), 245-251. doi:10.3928/01484834-20160414-02
- Elkins, N. (2015). Predictors of retention and passing the national council licensure examination for registered nurses. *Open Journal of Nursing*, 05, 218-225. doi:10.4236/ojn.2015.53026
- Felix, H., Laird, J., Ennulat, C., Donkers, K., Garrubba, C., Hawkins, S., & Hertweck, M. (2012). Holistic admissions process: An initiative to support diversity in medical education. *The Journal of Physician Assistant Education*, 23(3), 21-27. doi:10.1097/01367895-201223030-00004
- Foley, J. I., & Hijazi, K. (2013). The admissions process in a graduate-entry dental school: Can we predict academic performance? *British Dental Journal*, 214(2). doi:10.1038/sj.bdj.2013.56
- Fontaine, K. (2014). Effects of a retention intervention program for associate degree nursing students. *Nursing Education Perspectives*, 35, 94-99. doi:10.5480/12-815.1
- Gallup Organization. (2017). *The Gallup poll*. Washington, D.C: Gallup Organization.

- Retrieved from [http://news.gallup.com/poll/224639/nurses-keep-healthy-lead-honest-ethical-profession.aspx?g\\_source=CATEGORY\\_SOCIAL\\_POLICY\\_ISSUES&g\\_medium=topic&g\\_campaign=tiles](http://news.gallup.com/poll/224639/nurses-keep-healthy-lead-honest-ethical-profession.aspx?g_source=CATEGORY_SOCIAL_POLICY_ISSUES&g_medium=topic&g_campaign=tiles)
- Ghadirian, F., Salsali, M., & Cheraghi, M. A. (2014). Nursing professionalism: An evolutionary concept analysis. *Iranian Journal of Nursing and Midwifery Research, 19*(1), 1–10.
- Gies, M. (2013). Mentoring clinical adjunct nursing faculty. *International Journal for Human Caring, 17*(3), 35-40.
- Herrera, C., & Blair, J. (2015). Predicting success in nursing programs. *Research in Higher Education Journal, 28*, 1-8. Retrieved from <https://eric.ed.gov/?id=EJ1062101>.
- Hubbard, J. (2015). Predicting student nurse success: A behavioural science approach. *Nurse Education Today, 35*(6). doi:10.1016/j.nedt.2015.02.017
- Hultell, D., Rudman, A., & Gustavsson, P. (2013). Long-term effects of burnout on long-term sickness absenteeism. *PsycEXTRA Dataset, 612-624*.
- Ishihara, I., Ishibashi, Y., Takahashi, K., & Nakashima, M. (2014). Effect of organizational factors and work environments on newly graduated nurses' intention to leave. *Japan Journal of Nursing Science, 11*, 200-10.
- Jaschik, S., & Lederman, D. (Eds.). (2018, September 24). The 2018 Surveys of Admissions Leaders: The Pressure Grows. Retrieved October 22, 2018, from <https://www.insidehighered.com/news/survey/2018-surveys-admissions-leaders-pressure-grows>



- Kalist, D. E. (2005). Registered nurses and the value of bilingualism. *ILR Review*, 59(1), 101-118. doi:10.1177/001979390505900106
- Keita, M. D., Diaz, V., Miller, A., Olenick, M., & Simon, S. (2015). Transitioning from military medics to registered nurses. *Journal of Multidisciplinary Healthcare*, 495. doi:10.2147/jmdh.s93254
- Kelly, L. A., Mchugh, M. D., & Aiken, L. H. (2011). Nurse outcomes in magnet® and non-magnet hospitals. *The Journal of Nursing Administration*, 41, 428-433. doi:10.1097/nnn.0b013e31822eddbbc
- Knowles, M. (1996). *Adult learning*. In Robert L. Craig (ed.) *The ASTD training and development handbook* (pp. 253-264). NY: McGraw-Hill.
- Kovner, C. T., Brewer, C. S., Fatehi, F., & Jun, J. (2014). What does nurse turnover rate mean and what is the rate? *Policy, Politics, & Nursing Practice*, 15(3-4), 64-71. doi:10.1177/1527154414547953
- Lambe, P., & Bristow, D. (2011). Predicting medical student performance from attributes at entry: A latent class analysis. *Medical Education*, 45(3), 308-316. doi:10.1111/j.1365-2923.2010.03897.x
- Laska, M. N., Pasch, K. E., Lust, K., Story, M., & Ehlinger, E. (2009). Latent class analysis of lifestyle characteristics and health risk behaviors among college youth. *Prevention Science*, 10(4), 376-386. doi:10.1007/s11121-009-0140-2
- Masyn, K. (2013). Latent class analysis and finite mixture modeling. In T. Little (Ed.), *The Oxford handbook of quantitative methods in psychology* (Vol. 2, pp. 375-393). Oxford: Oxford University Press.
- Merkley, B. R. (2015). Student nurse attrition: A half century of research. *Journal of*

- Nursing Education and Practice*, 6(3), 71-75. doi:10.5430/jnep.v6n3p71
- McCutcheon, A. L. (1987). *Latent class analysis*. Newbury Park, CA: SAGE.
- McGinty, J., Radin, J., & Kaminski, K. (2013). Brain-friendly teaching supports learning transfer. *New Directions for Adult and Continuing Education*, 137, spring, 49-59. doi:10.1002/ace20044
- Missen, K., McKenna, L., & Beuchamp, A. (2014). Satisfaction of newly graduated nurses enrolled in transition-to-practice programmes in their first year of employment: A systemic review. *Journal of Advanced Nursing*, 70. doi:10.1111/jan.12464
- Moser, S., & Dereczyk, A. (2012). Predicting physician assistant students' professionalism by personality attributes. *The Journal of Physician Assistant Education*, 23(3), 28-32. doi:10.1097/01367895-201223030-00005
- National League for Nursing. (2014). *Nurse educator shortage fact sheet*. Retrieved from <http://www.nln.org/docs/default-source/advocacy-public-policy/nurse-faculty-shortage-fact-sheet-pdf?sfvrsn=0>
- National Council of State Board of Nursing. (2018). *Table of pass rates*. Retrieved from [https://www.ncsbn.org/Table\\_of\\_Pass\\_Rates\\_2017.pdf](https://www.ncsbn.org/Table_of_Pass_Rates_2017.pdf)
- New York State Department of Labor. (2013). *A statistical portrait of veterans in New York State*. Retrieved from <https://www.labor.ny.gov/stats/PDFs/enys1114.pdf>
- Numminen, O., Leino-Kilpi, H., Isoaho, H., & Meretoja, R. (2015). Newly graduated nurses' competence and individual and organizational factors: A multivariate analysis. *Journal of Nursing Scholarship*, 5, 446-457.

- Oliver, T., Hecker, K., Hausdorf, P. A., & Conlon, P. (2014). Validating MMI scores: Are we measuring multiple attributes? *Advances in Health Sciences Education, 19*, 379-392. doi:10.1007/s10459-013-9480-6
- Ortega, K. H., Burns, S. M., Hussey, L. C., Schmidt, J., & Austin, P. N. (2013). Predicting success in nurse anesthesia programs: An evidenced-based review of admission criteria. *American Association of Nurse Anesthetists, 81*, 183-189. Retrieved from [www.aana.com/aanajournalonline](http://www.aana.com/aanajournalonline).
- Paskausky, A. L., & Simonelli, M. C. (2014). Measuring grade inflation: A clinical grade discrepancy score. *Nurse Education in Practice, 14*(4), 374-379. doi:10.1016/j.nepr.2014.01.011
- Phillips, C., Kenny, A., Esterman, A., & Smith, C. (2014). A secondary data analysis examining the needs of graduate nurses in their transition to a new role. *Nurse Education in Practice, 14*, 106-111.
- Pope, P., Kellner, M., & McLarty, S. (2010). Research proposal: Student satisfaction in blended learning environment. Unpublished manuscript, Department of Nursing Education, Long Island University, Brookville, NY.
- R Core Team (2014). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria.
- Revelle, W., & Michaels, E. J. (1976). The theory of achievement motivation revisited: The implications of inertial tendencies. *Psychological Review, 83*(5), 394-404. doi:10.1037/0033-295x.83.5.394

- Romeo, E. M. (2013). The predictive ability of critical thinking, nursing GPA, and SAT scores on first-time NCLEX-RN performance. *Nursing Education Perspectives*, 34(4), 248-253. doi:10.5480/1536-5026-34.4.248
- Rovai, A.P. (2003). In search of higher persistence rates in distance education online programs. *The Internet and Higher Education* 6, 1-16. doi:10.1016/S1096-7516(02)00158-6
- Schripsema, N. R., Trigt, A. M., Borleffs, J. C., & Cohen-Schotanus, J. (2014). Selection and study performance: Comparing three admission processes within one medical school. *Medical Education*, 48, 1201-1210. doi:10.1111/medu.12537
- Schroeder, J. (2013). Improving NCLEX-RN pass rates by implementing a testing policy. *Journal of Professional Nursing*, 29(2), 43-47. doi:10.1016/j.profnurs.2012.07.002
- Serembus, J. F. (2016). Improving NCLEX first-time pass rates: A comprehensive program approach. *Journal of Nursing Regulation*, 6(4), 38-44. doi:10.1016/s2155-8256(16)31002-x
- Shacklock, K., Brunetto, Y., Teo, S., & Farr-Wharton, R. (2014). The role of support antecedents in nurses' intention to quit: The case of Australia. *Journal of Advanced Nursing*, 70, 811-822. http://dx.doi:10.1111/jan.12239
- Simon, E. B., McGinniss, S. P., & Krauss, B. J. (2013). Predictor variables for NCLEX-RN readiness exam performance. *Nursing Education Perspectives*, 34(1), 18-24. doi:10.5480/1536-5026-34.1.18
- Snively, T. M. (2016). A brief economic analysis of the looming nursing shortage in the United States. *Nursing Economics*, 34, 98-100.

- Spector, N., Blegen, M., Silvestre, J., Barnsteiner, J., Lynn, M., Ulrich, B., Fogg, L., & Alexander, M. (2015). Transition to practice study in hospital settings. *Journal of Nursing Regulation*, 5(4), 24-38.
- Sternberg, R. J. (1997). *Successful intelligence: How practical and creative intelligence determine success in life*. New York: Penguin Group.
- Students for Fair Admissions, Inc., v. President and Fellows of Harvard College, No. 1:14-cv-14176-ADB (United States District Court for The District of Massachusetts Boston Division. 2018).
- Tabi, M. (2016). Helping minority students from rural and disadvantaged backgrounds succeed in nursing: A nursing workforce diversity project. *Online Journal of Rural Nursing and Health Care*, 16(1), 59-75. doi:10.14574/ojrnhc.v16i1.362
- Thrasher, A. (2012). Factoring leadership into the admissions process. *The Journal of Physician Assistant Education*, 23(2), 49. doi:10.1097/01367895-201223020-00011
- Trofino, R. M. (2013). Relationship of associate degree nursing program criteria with NCLEX-RN success: What are the best predictors in a nursing program of passing the NCLEX-RN the first time? *Teaching and Learning in Nursing*, 8(1), 4-12. doi:10.1016/j.teln.2012.08.001
- Unruh, L., & Zhang, N. (2013). The role of work environment in keeping newly licensed registered nurses in nursing: A questionnaire survey. *International Journal of Nursing Studies*, 50, 1678-1688. doi.org/10.1016/j.ijnurstu.2013.04.002
- U.S. Department of Health and Human Services, Health Resources and Services Administration, National Center for Health Workforce Analysis. (2014). *About*

- the affordable care act*. Retrieved from <https://www.hhs.gov/healthcare/about-the-aca/index.html>
- U.S. Department of Veterans Affairs. (2017). *Veteran administration locations in New York*. Retrieved from <https://www.va.gov/DIRECTORY/GUIDE/state.asp?dnum=ALL&STATE=NY>
- Wang, J., & Wang, X. (2012). *Structural equation modeling. Applications using Mplus*. West Sussex: Wiley.
- White, B. J., & Fulton, J. S. (2015). Common experiences of African American nursing students: An integrative review. *Nursing Education Perspectives*, 36, 167-175. doi:10.5480/14-1456
- Wilson, A. H., Sanner, S., & McAllister, L. E. (2010). An evaluation study of a mentoring program to increase the diversity of the nursing workforce. *Journal of Cultural Diversity*, 17(4), 144-150. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/22303649>
- Yeom, Y. (2013). An investigation of predictors of NCLEX-RN outcomes among nursing content standardized tests. *Nurse Education Today*, 33, 1523-1528. doi:10.1016/j.nedt.2013.04.004
- Zhang, Y., Watermann, R., & Daniel, A. (2016). Are multiple goals in elementary students beneficial for their school achievement? A latent class analysis. *Learning and Individual Differences*, 51, 100-110. doi:10.1016/j.lindif.2016.08.023
- Zhang, Y., Wu, J., Fang, Z., Zhang, Y., & Wong, F. K. (2017). Newly graduated nurses intention to leave in their first year of practice in Shanghai: A longitudinal study. *Nursing Outlook*, 65(2), 202-211. doi:10.1016/j.outlook.2016.10.0



## Appendix A

## Actual Survey

Instructions: Thank you for agreeing to complete this 33-item anonymous survey, which should take less than five minutes to complete. You can take the survey on any electronic device that has internet connectivity, at any location where you are comfortable. Please complete the survey no later than \_\_\_\_\_. The questions are general in nature, mostly involving your educational and professional experiences prior to your admission into your associate degree nursing program. As such, they are not likely to cause you any emotional risks or discomfort. While there is no direct benefit for your participation in the study, it is reasonable to expect that the results may provide information of value for the field of nursing education.

1. Do you consider yourself to have good judgment?
2. Are you bilingual?
3. Had you earned any other degrees prior to going into the nursing program?
4. Do you seek out challenges?
5. Do you believe you are capable of achieving anything?
6. Was your GPA over 3.0 when you were admitted into the nursing program?
7. Were you a veteran when you applied to the nursing program?
8. Are you multilingual?
9. Do you consider yourself to be professional?
10. Have you had other careers before going into nursing?
11. Do you consider yourself to be an optimist?
12. Was your ACT score over 20?



13. Do you feel a need to utilize what you learn?
14. Do you consider yourself to be ethical in nature?
15. In the event of failure, do you recover quickly?
16. Are you motivated by intrinsic factors, such as improved self-image, increased duties, and reaching goals?
17. Are you self-directed?
18. Do you feel compelled to complete something, once you have started?
19. Are you aware of your coworkers' patient assignments, in addition to your own?
20. Do you admit to your mistakes?
21. Did you have prior healthcare work experience when you applied to the associate degree nursing program?
22. Were you able to apply transfer credits when you enrolled into the nursing program?
23. Would you describe yourself as resilient?
24. Did you repeat any of the prerequisite courses necessary for the nursing program?
25. Overall, do you believe you possess spiritual well-being?
26. Do you feel you possess leadership qualities?
27. Did you earn your RN license in New York State?
28. Were you successful in passing the NCLEX-RN on your first attempt?
29. Are you currently working in the nursing profession?
30. Did you graduate from an associate degree nursing program?
31. Were you in the full-time traditional (day) associate degree nursing program?
32. Were you in the part-time (evening) associate degree nursing program?<sup>97</sup>

33. Why did you wish to become a nurse?

## Appendix B

## Consent

**Project Title:** Admissions Criteria That Best Predict Which Applicants Will Successfully Enter the Nursing Profession

You are invited to contribute to a research study being conducted by Marlene Kellner, a nursing faculty member at a community college in the Northeastern United States. The information in this form is provided to help you decide whether or not to participate. If you decide to take part in the study, you will be asked to acknowledge this consent form. If you decide you do not want to participate, there will be no penalty to you, and you will not lose any benefits you normally would have.

**Why is this study being conducted?**

The purpose of this survey is to gather data representing individuals who have been enrolled in an associate degree nursing program regardless if they ever entered into the nursing profession.

**Why am I being asked to be in this study?**

You are being asked to participate in this study because your opinions as an individual who was enrolled in an associate degree program are vital.

**How many people will be asked to be in this study?**

500 individuals (participants) will be invited to participate in this study.

**What are the alternatives to being in this study?**

The alternative to being in the study is not to participate.

**What will I be asked to do in this study?**

You will be asked to complete an online 33-item anonymous survey. This task should require less than 5 minutes.

**Are there any risks to me?**

The things that you will be doing are no more/greater than risks than you would encounter in everyday life.

**Will there be any costs to me?**

Aside from your time, there are no costs for taking part in the study.

**Will I be paid to be in this study?**

You will not be paid for being in this study.

**Will information from this study be kept private?**

Any information collected will be kept private. No identifiers linking you to this study will be included in any sort of report that might be published. Research records will be stored securely and only the researcher will have access to the records. The data will be kept for three years before being destroyed.

**Who may I contact for more information?**

You may contact the Faculty Investigator/Sponsor: Paula Lester Ph.D.

Department: Doctor of Education in Interdisciplinary Educational Studies

Campus: Long Island University, LIU Post Campus

Phone: 516-299-2191 Fax: 516-299-3312 Email: [paula.lester@liu.edu](mailto:paula.lester@liu.edu) or If you have questions concerning your rights as a subject, you may contact the Institutional Review Board Administrator, Dr. Lacey Sischo, at (516) 299-3591.

**What if I change my mind about participating?**

This research is voluntary and you have the choice whether or not to participate in this research study. You may decide to not begin or to stop participating at any time.

**STATEMENT OF CONSENT**

I agree to be in this study and know that I am not giving up any legal rights by signing this form. The procedures, risks, and benefits have been explained to me, and my questions have been answered. I can ask more questions if I want.

**Do you agree to give consent in order to participate in this survey?**

☐ Yes

☐ No

## Appendix C

## Survey Item Sources

**Theory of Successful Intelligence**

1. Do you consider yourself to have good judgment?
2. Do you consider yourself to be ethical in nature?
3. Do you consider yourself to be professional?
4. Were you a veteran when you applied to the nursing program (and literature review: Keita et al., 2015)
5. Are you bilingual? (and literature review: Felix et al., 2012)
6. Are you multilingual? (and literature review: Felix et al., 2012)
7. Had you earned any other degrees prior to going into the nursing program?
8. Have you had other careers before going into nursing?

**Theory of Self-Efficacy**

9. Do you seek out challenges?
10. Do you consider yourself to be an optimist?
11. In the event of failure, do you recover quickly?

**Adult Learning Theory**

12. Are you motivated by intrinsic factors, such as improved self-image, increased duties, and reaching goals?
13. Are you self-directed?
14. Do you feel a need to utilize what you learn?

**Theory of Achievement Motivation**

15. Do you feel compelled to complete something, once you have started?

16. Do you believe you are capable of achieving anything?

### **Literature Review**

17. Do you feel you possess leadership qualities? (Thrasher, 2012)

18. Was your GPA over 3.0 when you were admitted into the nursing program?

(Ortega et al., 2013; Schripsema et al., 2014)

19. Are you aware of your coworkers' patient assignments, in addition to your own?

(Hubbard, 2015)

20. Do you admit to your mistakes? Integrity (Hubbard, 2015)

21. Did you have prior healthcare work experience when you applied to the associate degree nursing program? (Foley & Hihazi, 2013)

22. Were you able to apply transfer credits when you enrolled into the nursing program? (Simon, McGinnis, & Krauss, 2013)

23. Did you repeat any of the prerequisite courses necessary for the nursing program? (Trofino, 2013)

24. Was your ACT score over 20? (Elkins, 2015)

25. Would you describe yourself as resilient? (Literature Review)

26. Overall, do you believe you possess spiritual well-being? (Beauvis et al., 2013)

### **Demographic Questions**

27. Did you earn your RN license in New York State?

28. Were you successful in passing the NCLEX-RN on your first attempt?

29. Are you currently working in the nursing profession?

30. Did you graduate from an associate degree nursing program?

31. Were you in the full-time traditional (day) associate degree nursing program?
32. Were you in the part-time (evening) associate degree nursing program?
33. Why did you wish to become a nurse?



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BUSH-BROWN HALL, UNIVERSITY CENTER

**NOTICE TO ALL RESEARCHERS:**

*Please be aware that a protocol violation (e.g., failure to submit a modification for any change) of an IRB approved protocol may result in mandatory remedial education, additional audits, re-consenting subjects, researcher probation, suspension of any research protocol at issue, suspension of additional existing research protocols, invalidation of all research conducted under the research protocol at issue, and further appropriate consequences as determined by the IRB and the Institutional Officer.*

**TO:** Dr. Paula Lester  
Marlene Kellner (Student Investigator)

**FROM:** Dr. Lacey Sischo, IRB Administrator  
LIU Institutional Review Board

**DATE:** July 18, 2018

**PROTOCOL TITLE:** Admissions Criteria That Best Predict Which Applicants Will Successfully Enter the Nursing Profession

**PROTOCOL ID NO: P 18/05-106.A1 (Amendment 1)**

**REVIEW TYPE:** Administrative (Exempt)

**ACTION: Amendment Approved**

Your request made on July 18, 2018 to make an amendment to your project was administratively reviewed and **approved**. According to your formal request, you will:

- Remove item #5 from the survey.
- Recruit only the graduates of the nursing program, not the students who were enrolled in the program.
- Revise the informed consent form and recruitment letter to reflect these changes.

The amended application now includes the suffix “.A1”, and is on file in the Office of Sponsored Research as Project ID No. P 18/05-106.A1 (first amendment).

Please note the following:

1. Approval for sites other than Long Island University is given only for those indicated in the original application and from which appropriate letters of approval have been received by the IRB.
2. Revisions and amendments to the research activity must be promptly reported to the IRB for review and approval prior to the commencement of the revised protocol (the only exception is in those situations where changes in the protocol are required to eliminate

apparent, immediate hazards to the subject).

3. The IRB must be notified immediately of any unanticipated problems or adverse events affecting risk to subjects.
4. Where consent form(s) have been approved for the research activity, only IRB approved, stamped consent forms may be used in the consent process. One signed copy of the stamped form must be given to the subject, one must be placed in subject's file/chart (if appropriate), and the principal investigator must keep one (if applicable). You are responsible for maintaining signed consent forms for a period of at least three years after study completion (if applicable).

If consent is on-line, the on-line form should include language/indication of the IRB approval as would be found on a hard-copy/paper form.

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**Verification of Institutional Review Board (IRB) Amended Approval**

**Protocol ID:** P 18/05-106.A1 (*Amendment #1*)

**Protocol Title:** Admissions Criteria That Best Predict Which Applicants Will Successfully Enter the Nursing Profession

**Signature:** \_\_\_\_\_  
*Lacey Sischo*

**Name/Title:** Lacey Sischo, PhD, IRB Administrator